

SERVICE
MANUAL

1150

marantz

model 1150

Console Stereo Amplifier

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1. POWER AMPLIFIER ADJUSTMENT

1.1 Adjustment of idling current

Connect VTVM between left channel J701 and J702. Adjust R742 until the meter reads 10mV. Similarly, connect VTVM between right channel J701 and J702 and adjust R742 until the meter reads 10mV.

1.2 DC-OFFSET adjustment

Connect VTVM to JN04 and JN10 (or ground) and adjust left channel R741 until the meter indication reaches 0mV (± 5 mV). Similarly, connect VTVM to JN05 and JN10 (or ground) and adjust right channel R741 until the meter indication reaches 0mV (± 5 mV).

2. POWER SUPPLY ADJUSTMENT

Connect a voltmeter between J805 and J810. Adjust R815 until meter indicates 44 VDC. Similarly connect a voltmeter between J816 and J810. Adjust R816 until meter indicates -44 VDC.

3. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model 1150 Stereo Console Amplifier. The wattmeter, ac voltmeter, and variable autotransformer may be assembled as a test fixture as shown schematically in Figure 1. The load resistors and ac ammeter may be assembled into a second test fixture as shown in Figure 2.

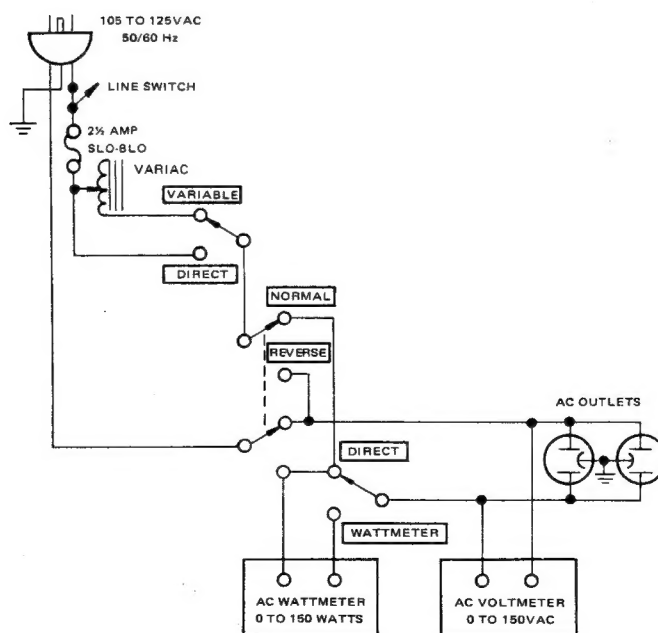


Figure 1. AC Power Control Box Simplified Schematic

Item	Manufacturer and Model No. (or equivalent)	Function
Distortion Analyzer	Hewlett Packard, Model 331A or 333A	Measures distortion and voltage of amplifier output.
Audio Oscillator	Weston Model CVO-100P (NOTE: Less than 0.02 percent residual distortion is required.)	Sinewave and squarewave signal source.
Oscilloscope	Tektronix, Model 503; Data, Model 555	Waveform analysis and troubleshooting.
VTVM	RCA Senior Volt-Ohmyst, Model WV-98C	Voltage and resistance measurements.
AC Wattmeter	Simpson, Model 390	Monitors primary power consumption of amplifier.
AC Ammeter (0 to 10 amps)	Commercial Grade	Monitors amplifier output under short circuit condition.
Line Voltmeter (0 to 150 vac)	Commercial Grade	Monitors potential of primary power to amplifier.
Variable Autotransformer (0 to 140 vac, 10 amps)	Powerstat, Model 116B.	Adjusts level of primary power to amplifier.
Shorting Plug	Use phono plug with 600 ohms across center pin and shell.	Shorts amplifier input to eliminate noise pickup.
Power Supply Bleeder Resistor (10 ohms at 1W)	Commercial Grade	Discharges power supply filter capacitors prior to disassembly or resistance measurements.
Output Load Resistor (8 \pm 0.5%, 250W)	Commercial Grade	Provides 8-ohm load for amplifier output termination.
Output Load Resistor (4 \pm 5%, 250W)	Commercial Grade	Provides 4-ohm load for amplifier output termination.
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks.
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1.	Monitors and controls primary power for amplifier.
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2.	Provides various amplifier loads and can monitor shorted output.

Table 1. Test Equipment Required for Servicing

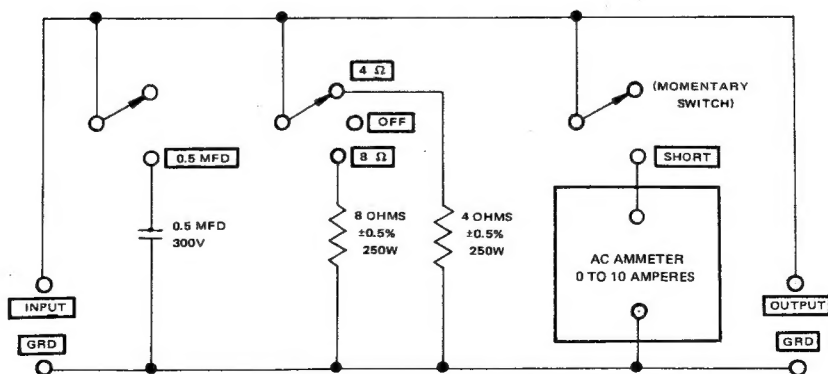
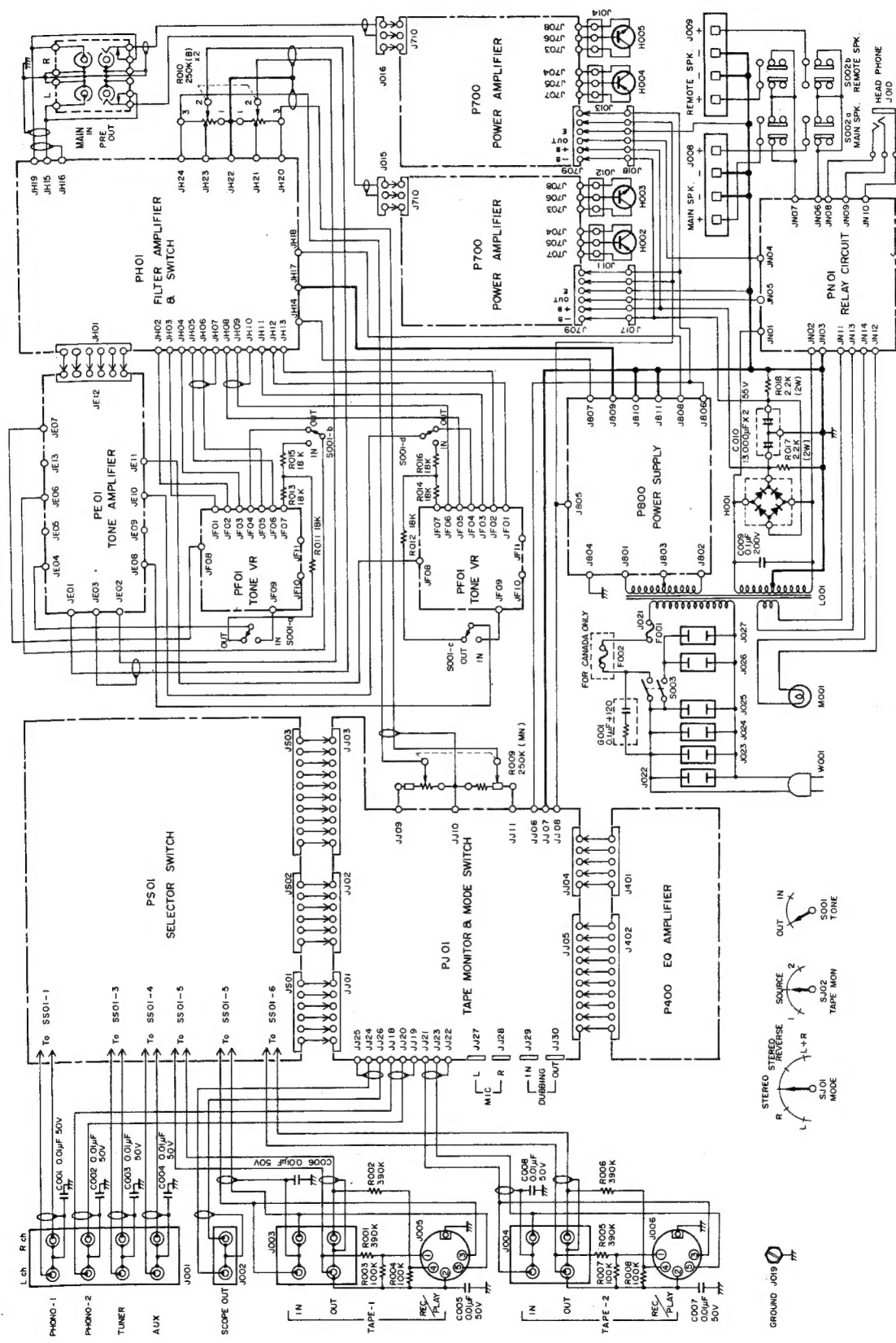


Figure 2. Amplifier Output Load Box Simplified Schematic



SCHEMATIC DIAGRAM OF MODEL 1150(U) and (C) 1975, 113, 7-14

Figure 3. Wiring Diagram

NOTE: This schematic diagram applies to units manufactured for the European market.

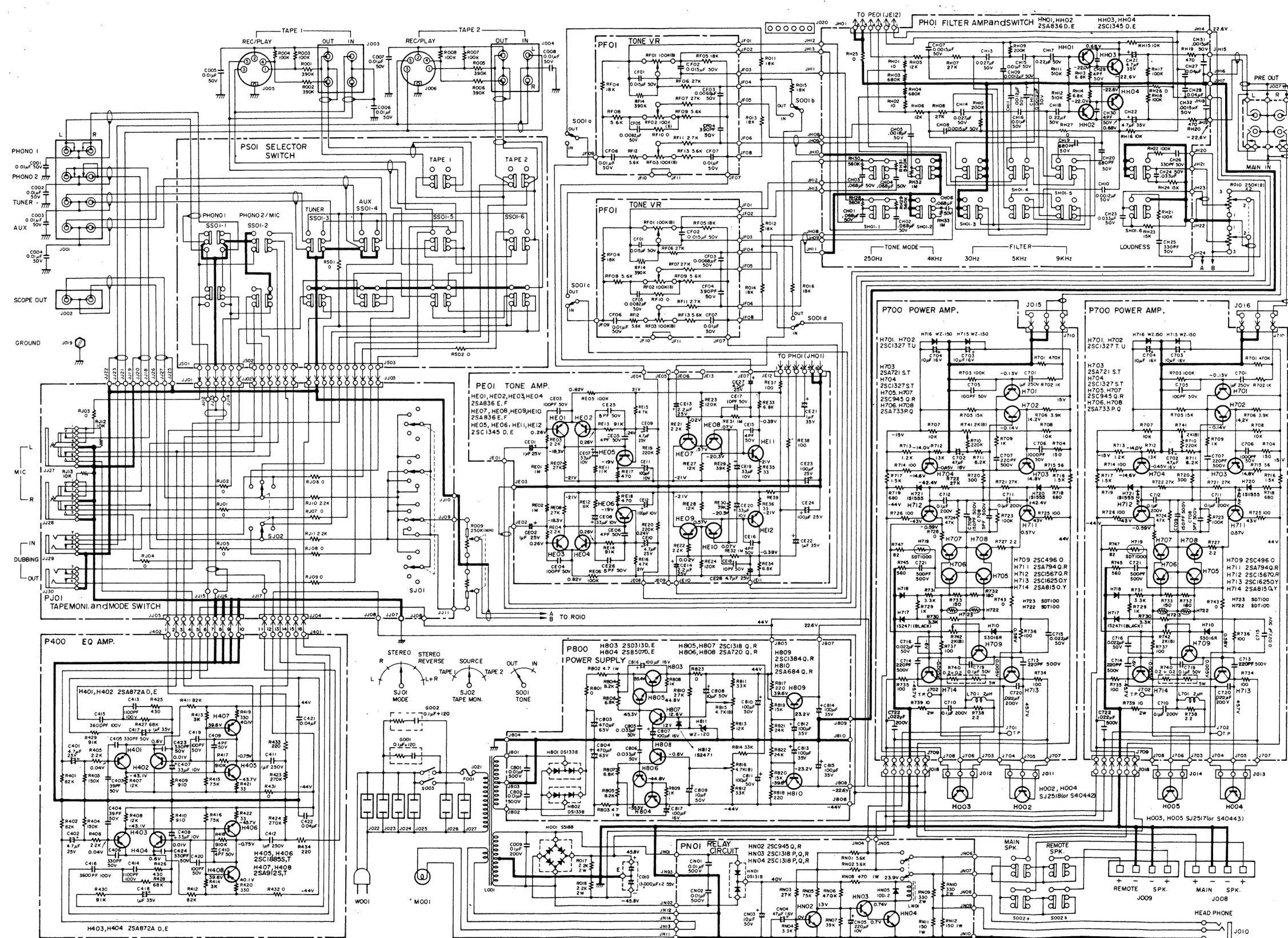


Figure 4. Schematic Diagram

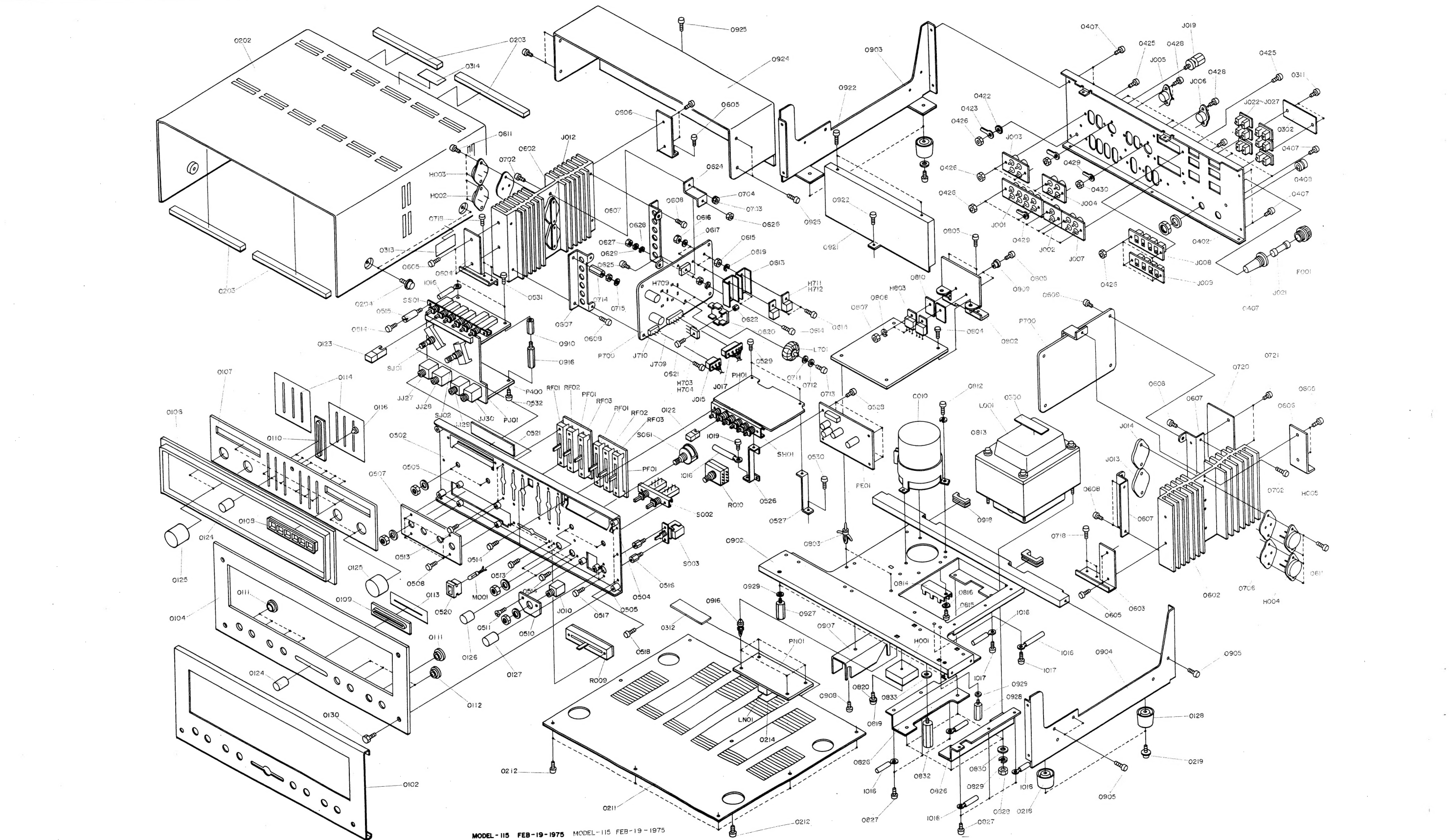


Figure 5. Exploded Mechanical Diagram

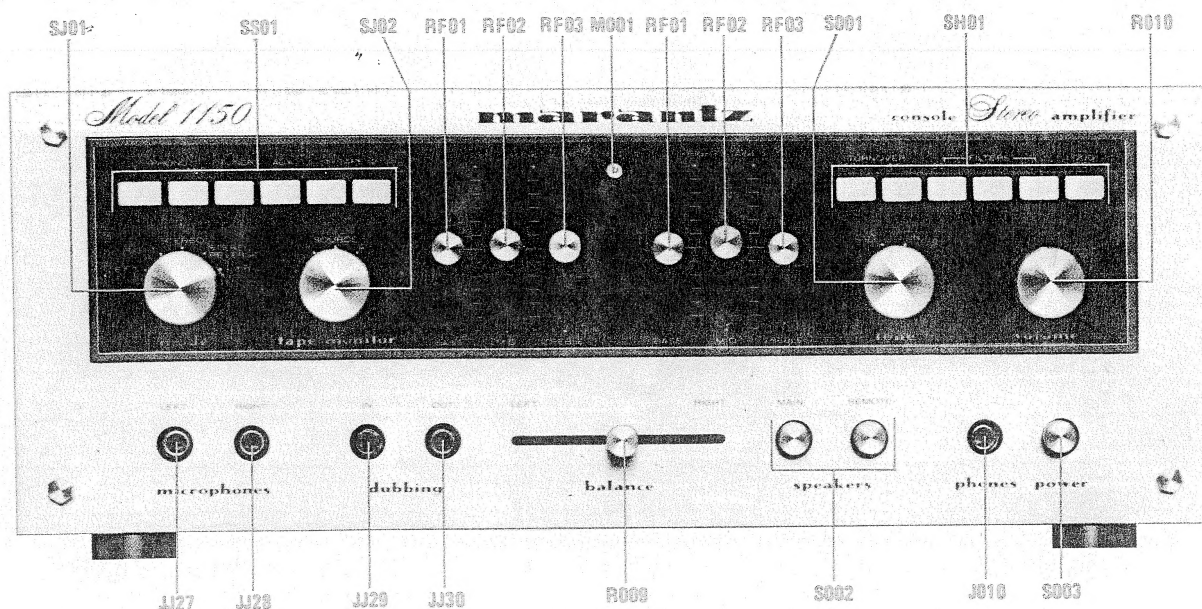


Figure 6. Front Panel Adjustments and Component Locations

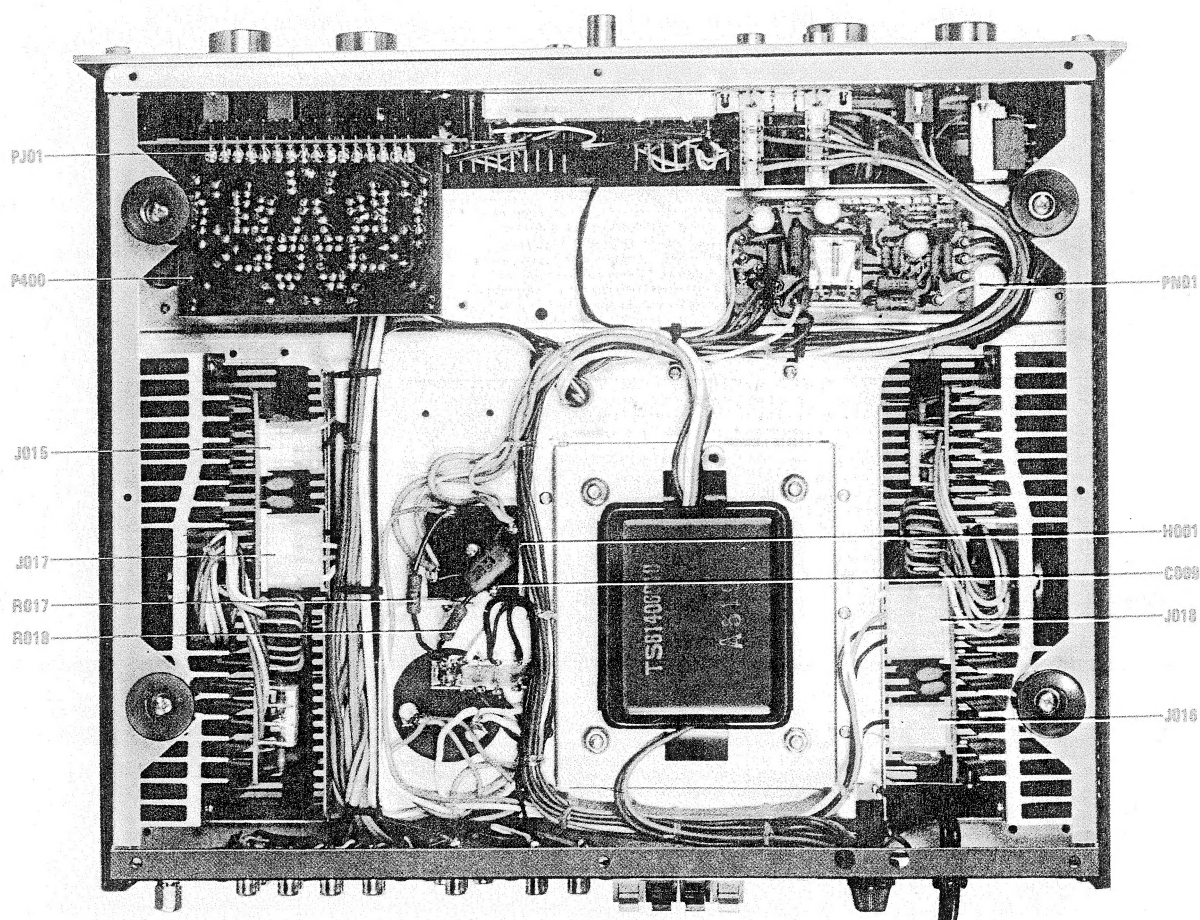


Figure 7. Main Chassis Component Locations (Bottom View)

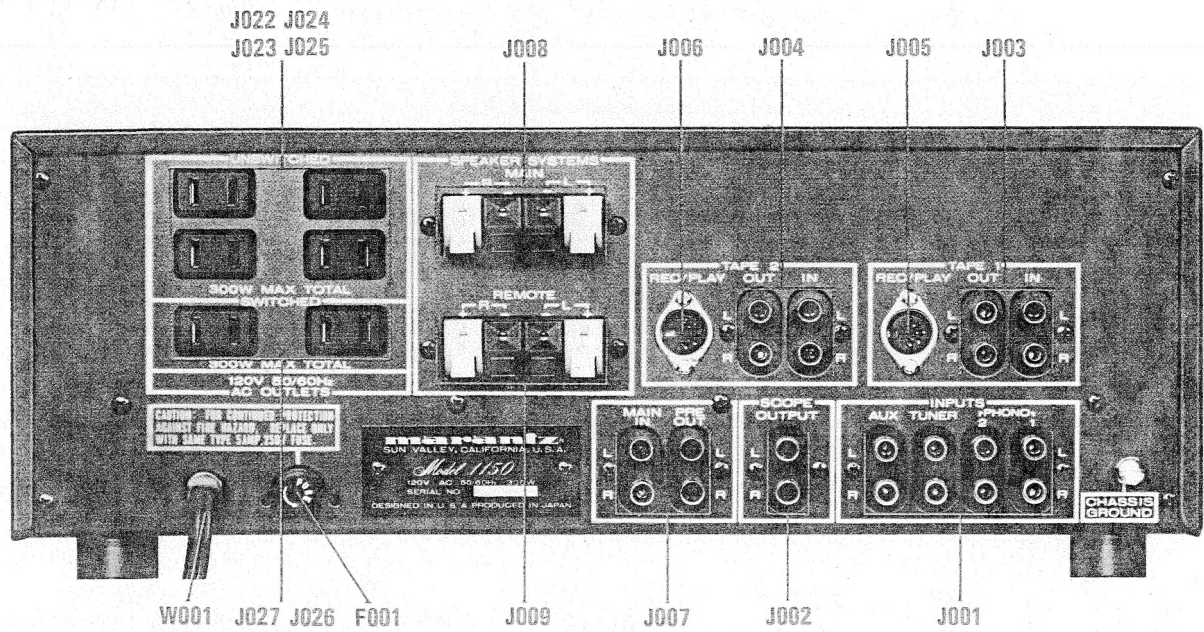


Figure 8. Rear Panel Adjustment and Component Locations

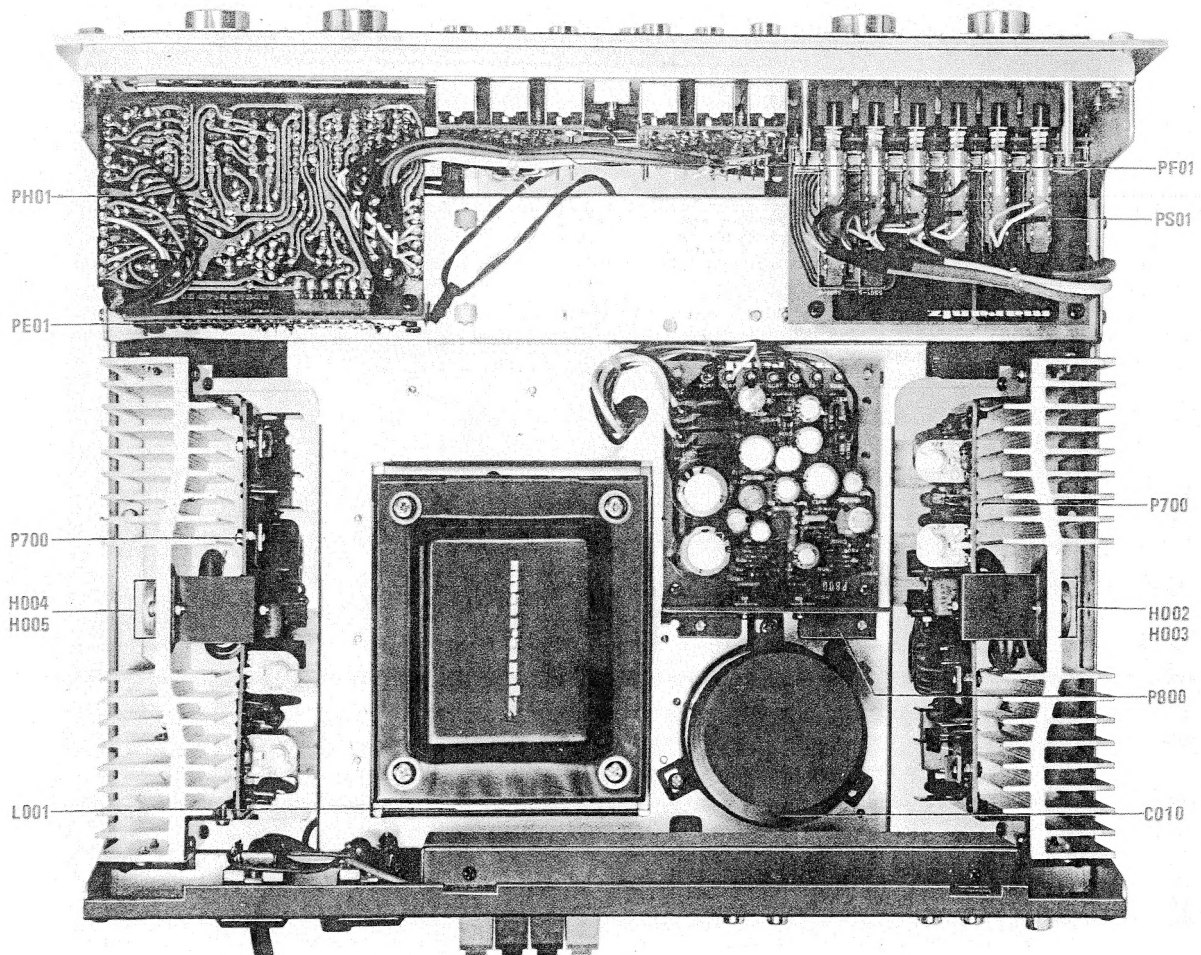


Figure 9. Main Chassis Component Locations (Top View)

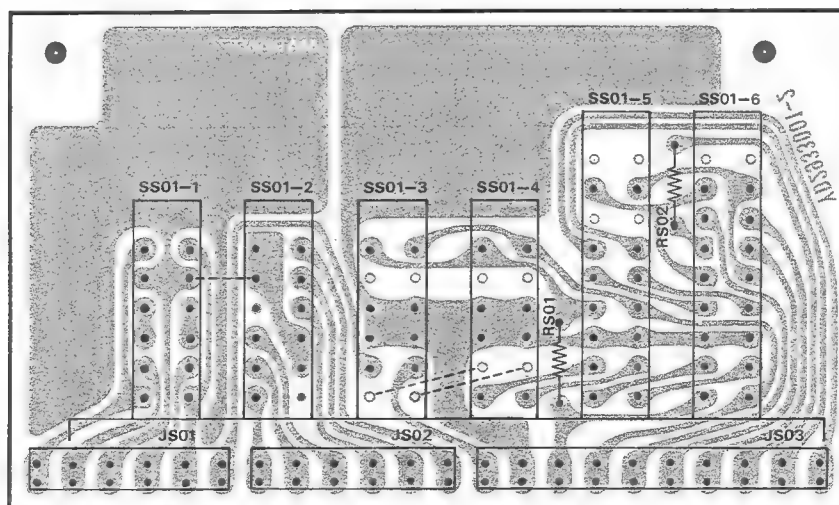
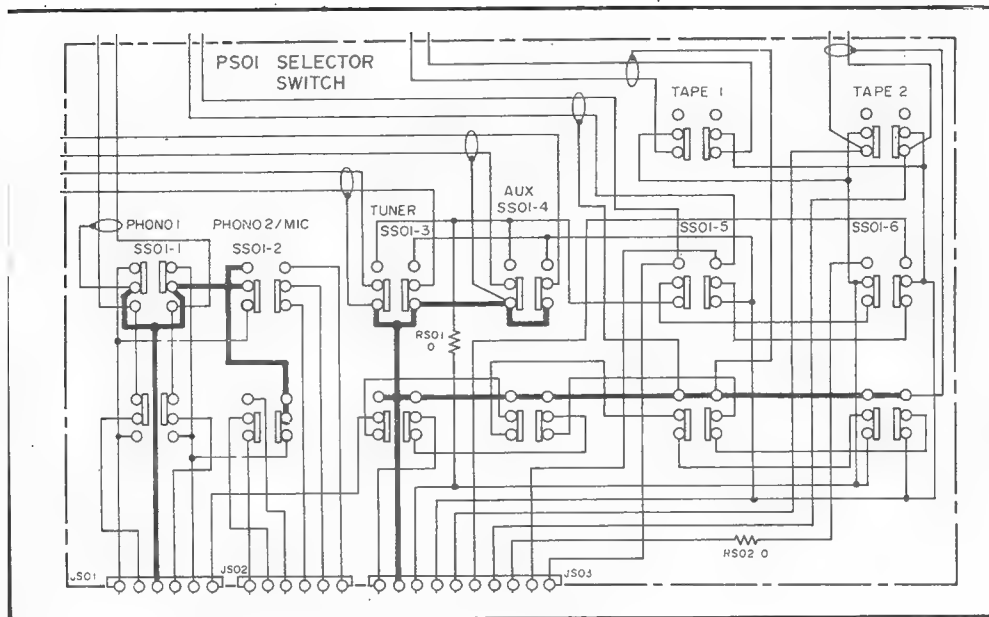


Figure 10. Selector SW (PS01) Schematic Diagram and Component Locations

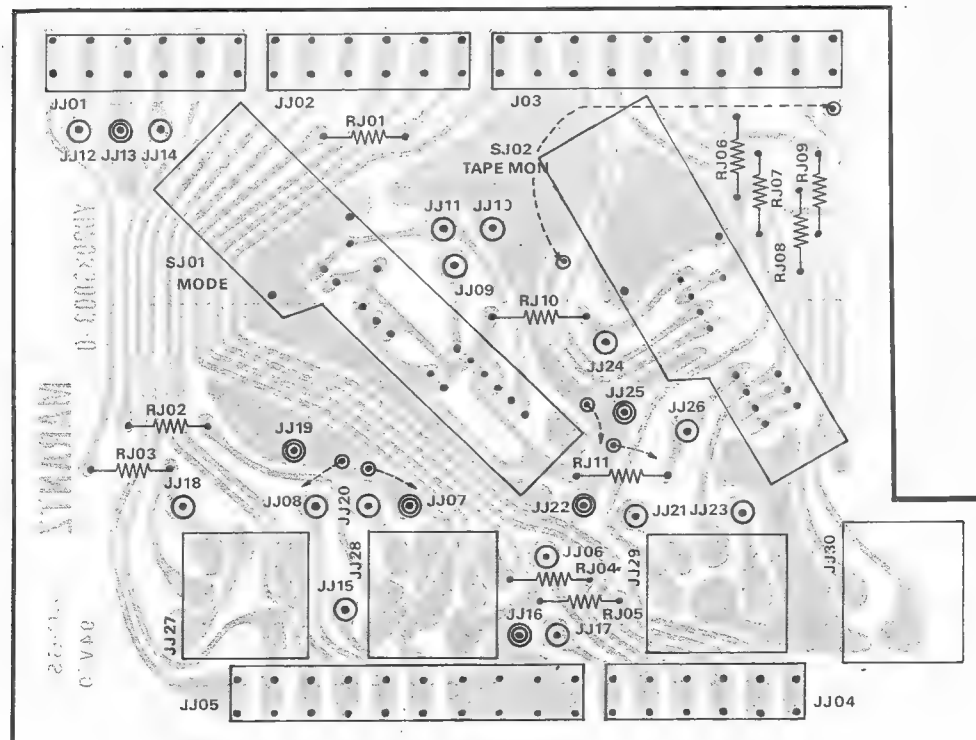
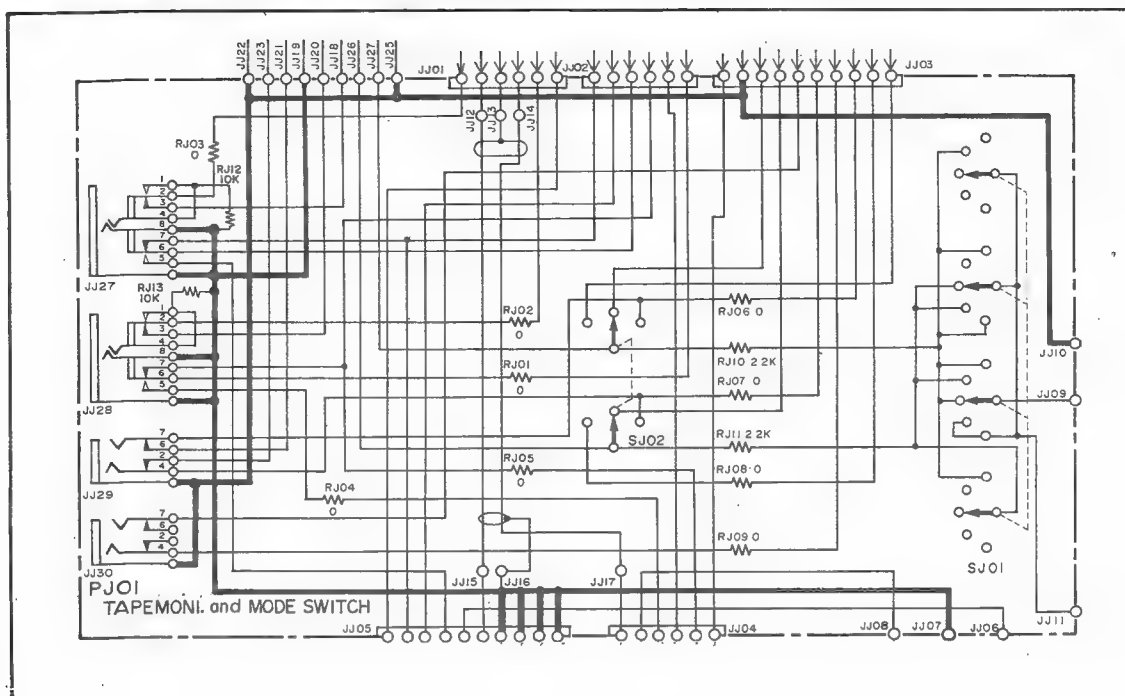


Figure 11. Rotary SW (PJ01) Schematic Diagram and Component Locations

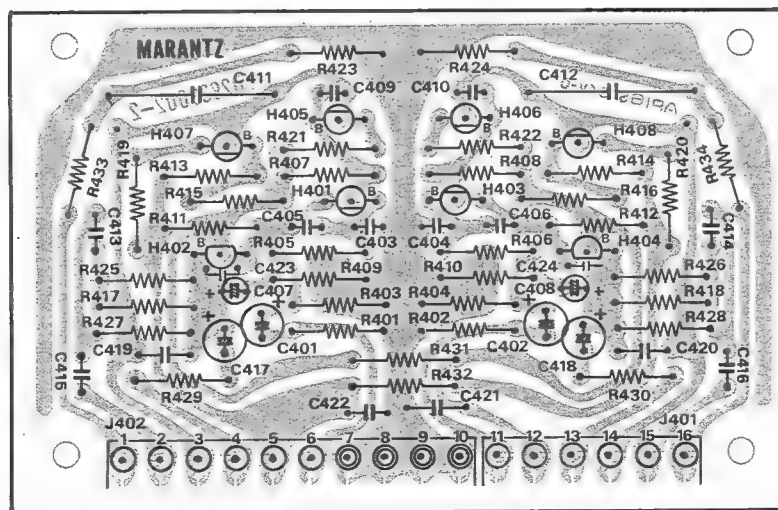
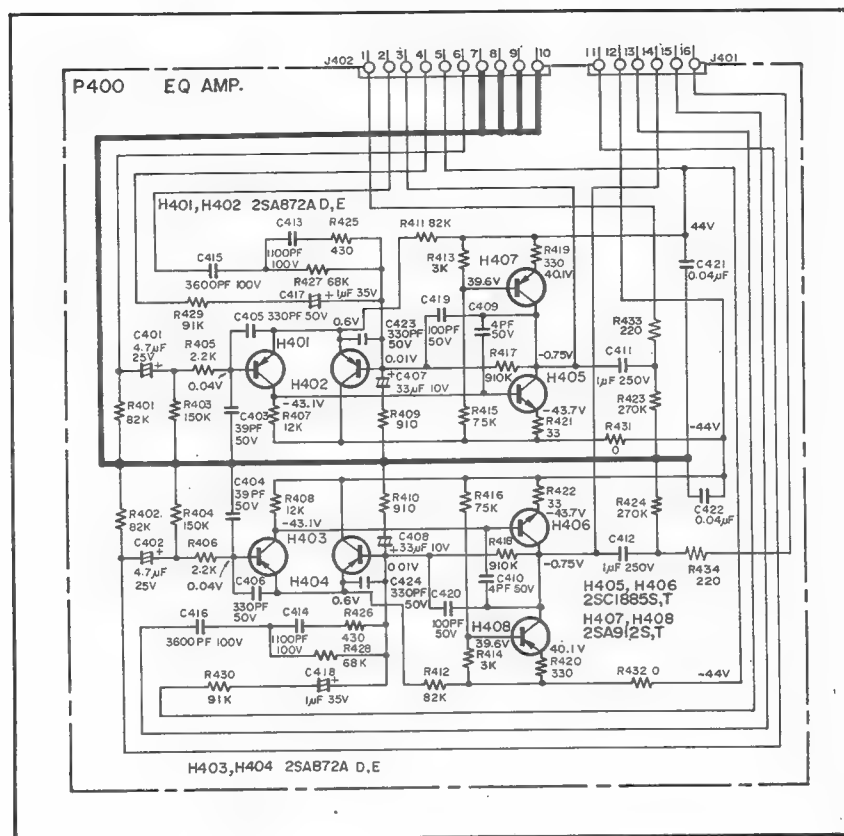


Figure 12. EQ Amplifier (P400) Schematic Diagram and Component Locations

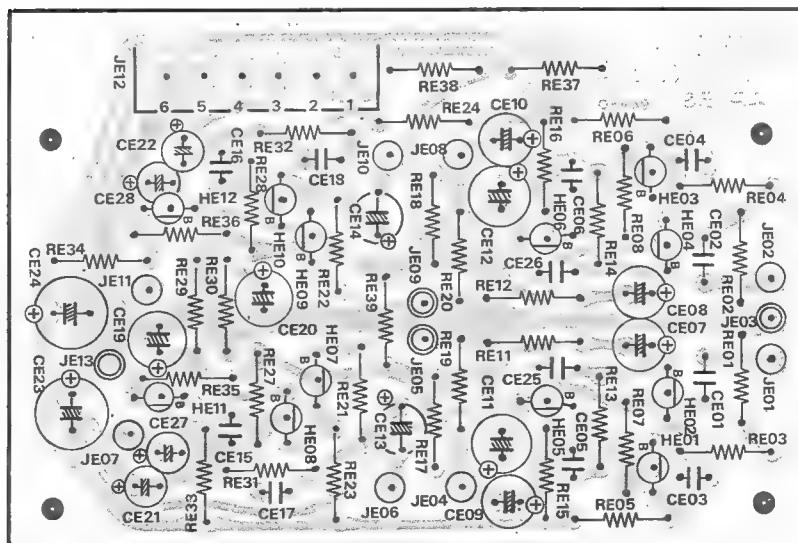
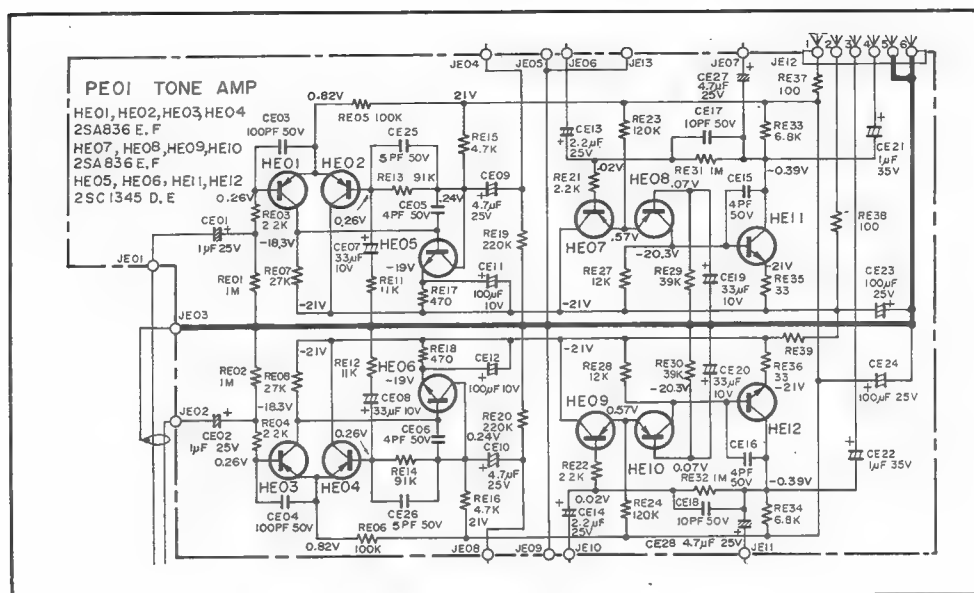


Figure 13. Tone Amplifier (PE01) Schematic Diagram and Component Locations

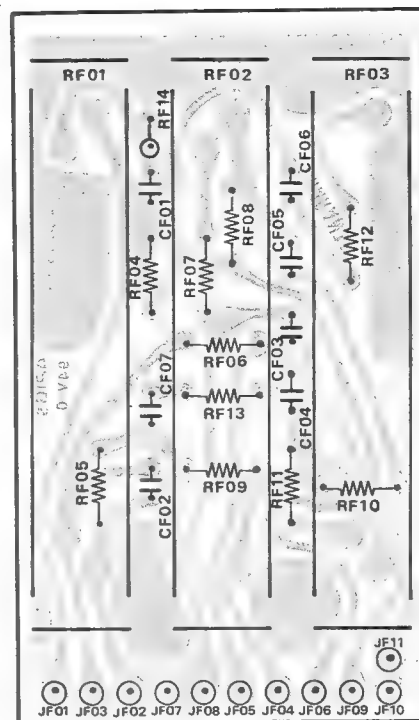
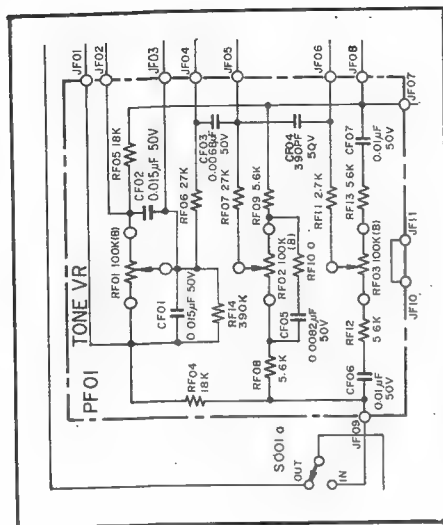


Figure 14. Tone Control Volume (PF01) Schematic Diagram and Component Locations

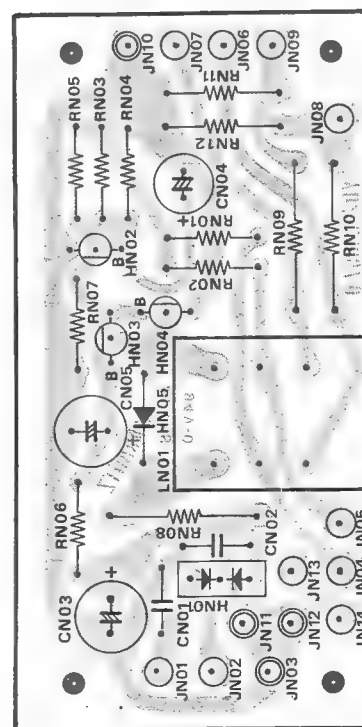
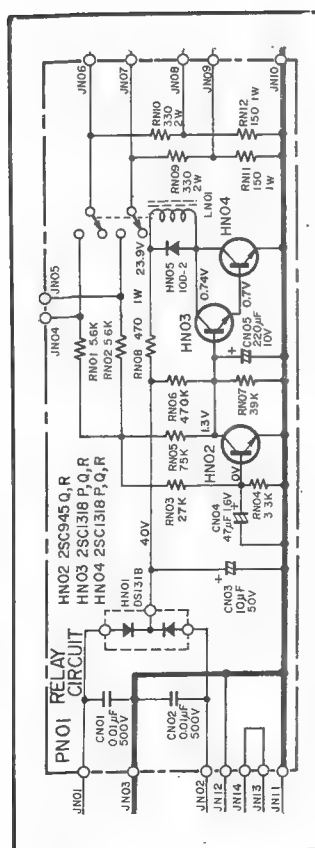


Figure 15. Relay (PN01) Schematic Diagram and Component Locations

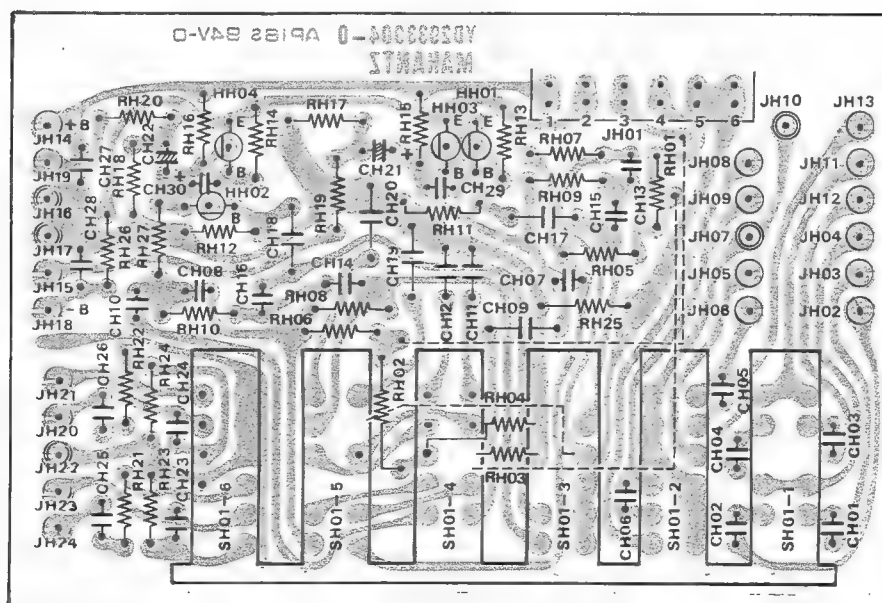
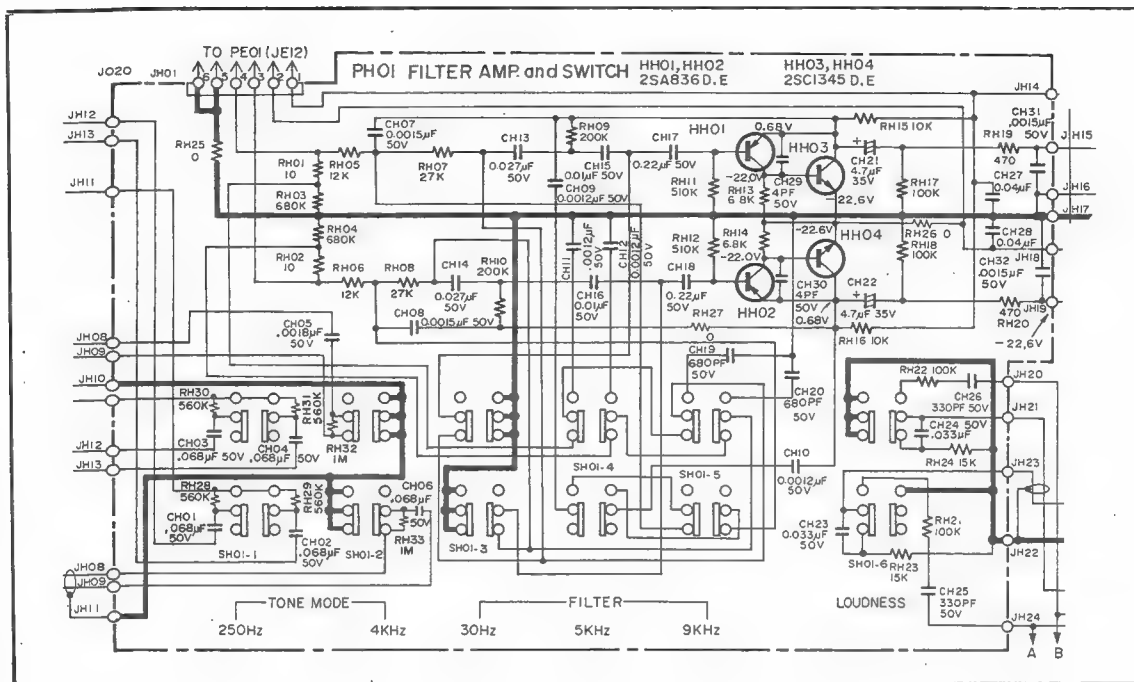


Figure 16. Filter Assembly (PH01) Schematic Diagram and Component Locations

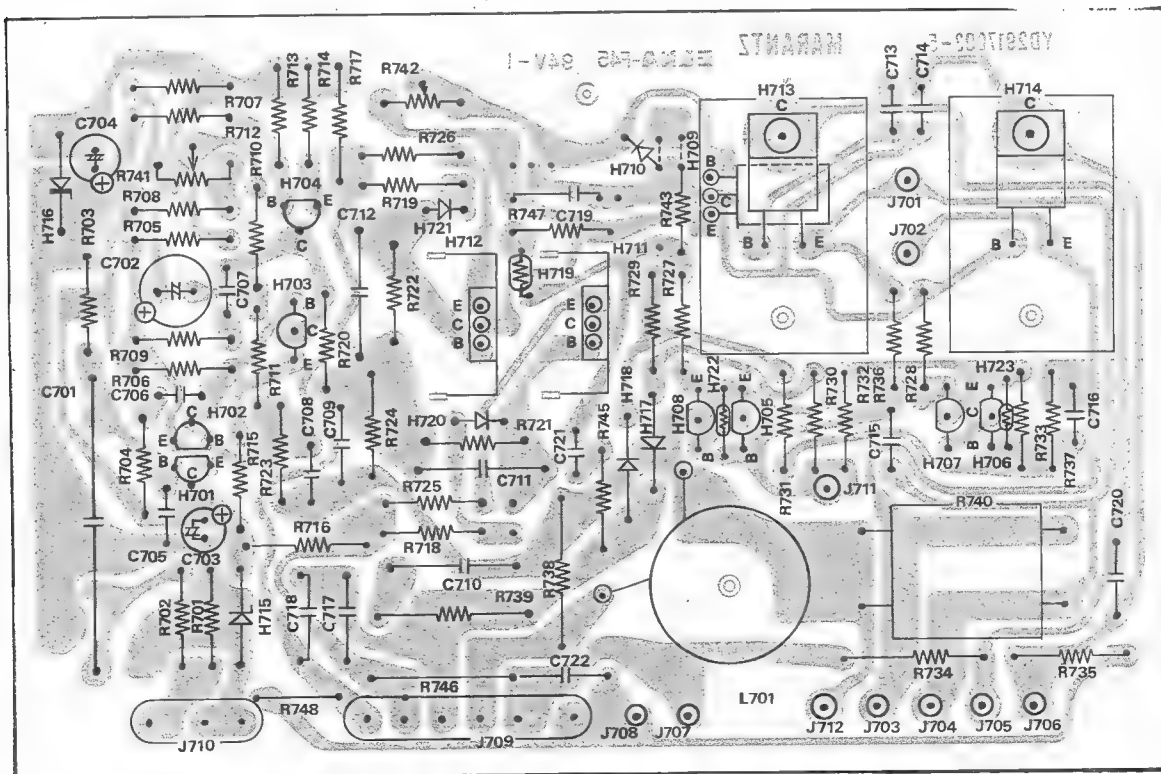
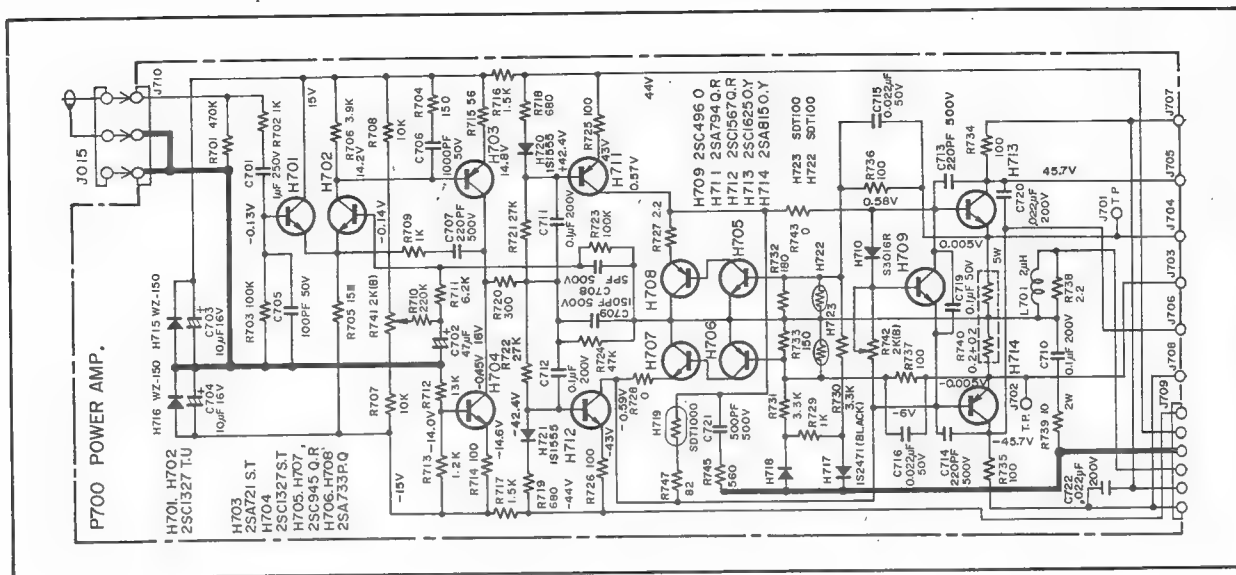


Figure 17. Main Amplifier (P700) Schematic Diagram and Component Locations

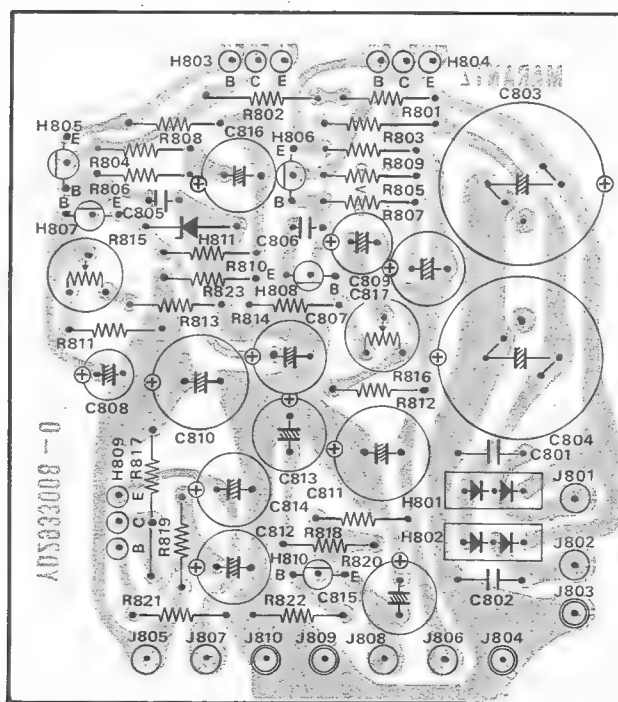
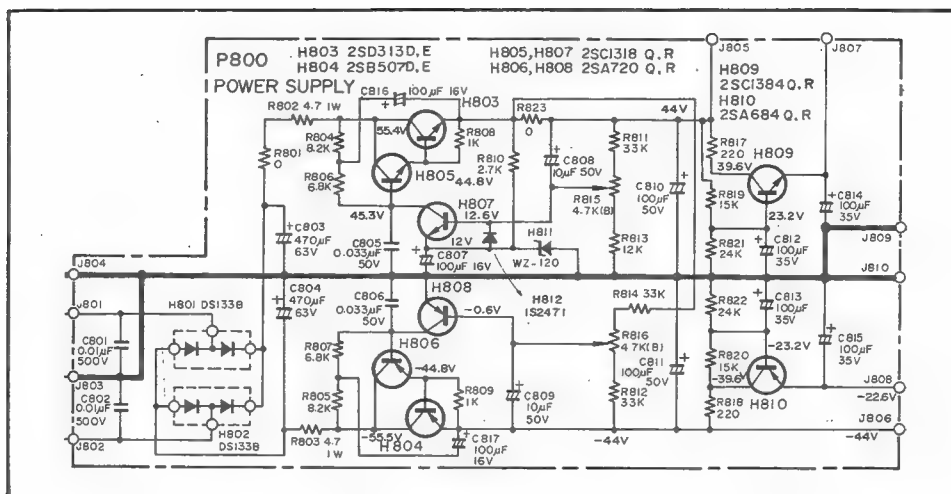


Figure 18. Power Supply (P800) Schematic Diagram and Component Locations

SPECIFICATIONS

AUDIO CIRCUITS:

Amplifier Section:

RATED POWER OUTPUT 75 WATTS PER CHANNEL,
CONTINUOUS AVERAGE POWER,
BOTH CHANNELS DRIVEN,

POWER BAND 20Hz to 20kHz

TOTAL HARMONIC DISTORTION 0.1 %

LOAD IMPEDANCE 8 OHMS

Frequency Response @ 1 Watt Output 5 Hz to 50 kHz ± 1 dB

Intermodulation Distortion Less than 0.1%

Preamplifier Section:

Total Harmonic Distortion at Rated Output Level 0.05%

Intermodulation Distortion (SMPTE) 0.02%

Frequency Response

Phono (Maximum variation from RIAA Standard) 20 Hz to 20 kHz ± 0.5 dB

Tape or Aux 15 Hz to 50 kHz ± 1 dB

Signal to Noise Ratio (at rated output)

Aux Input (0.775 V input level) 88 dB

Phono Input (7.75 mV input level) 78 dB

PHONO:

Dynamic Range 111 dB

NOTE: Dynamic Range is the ratio in dB of the phono overload (300 mV)
to equivalent input noise (0.85 μ V).

Equivalent Input Noise 0.85 μ V

Input Overload @ 1 kHz, 0.1% THD 300 mV

Input Sensitivities (for rated output)

Mic 1.8 mV

Phono 1.8 mV

Tape or Aux 180 mV

Main In 1.5 V

Input Impedances

Mic 10 k ohms

Phono 47 k ohms

Tape or Aux 60 k ohms

Main In 75 k ohms

Tape Output Level
 (Ref.: 7.75mV @ phono input) 775 mV

GENERAL:

Power Requirements 120V AC 50/60 Hz (US & Canadian Models)
 Idling Power Consumption 30 Watts (Nominal)
 Consumption at Rated Power 300 Watts (Nominal)
 Maximum Power Consumption 450 Watts (Nominal)
 Cabinet Dimensions-Height 5-4/3 inches
 Width 15-3/8 inches
 Depth 12-3/8 inches
 Weight 33 lbs.

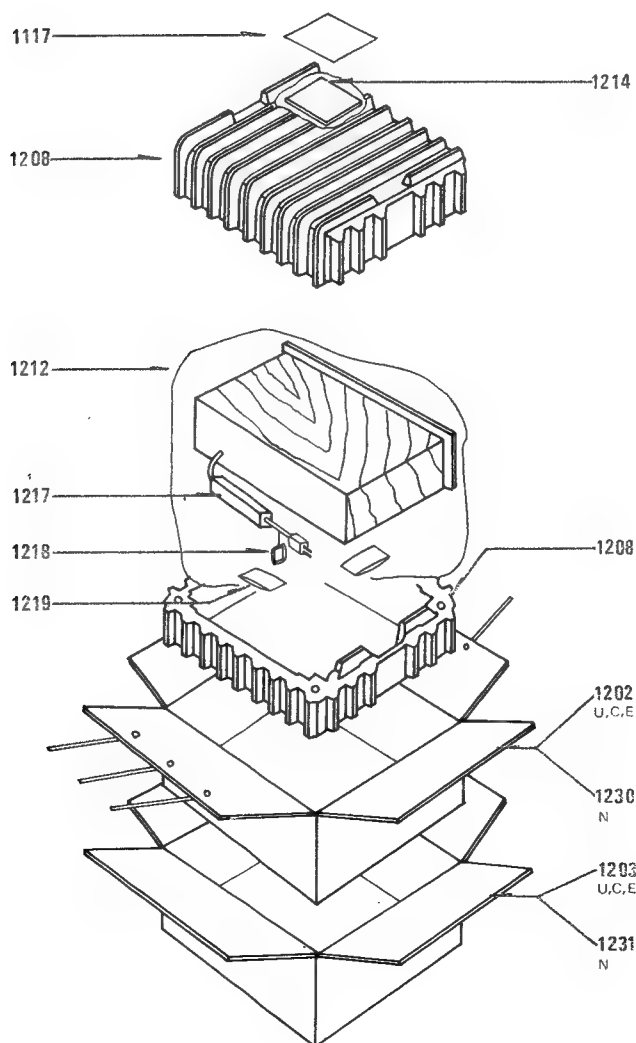


Figure 19. Packing

Note:
 U: For U.S.A. E: For Europe
 C: For Canada N: For Scandinavia

Parts List

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
A	1	1	1	1	293306340	Front Panel Assembly, Plastic
A1	1	1	1	1	293306341	Front Panel Assembly, Metallic
0104	1	1	1	1	293306301	Escutcheon
0106	1	1	1	1	285540101	Frame
0107	1	1	1	1	293315801	Window
0107	1	1	1	1	293306302	Escutcheon
0108	2	2	2	2	290425901	Bush
0109	1	1	1	1	292625902	Bush
0110	6	6	6	6	292625903	Bush
0111	5	5	5	5	273125901	Bush
0112	3	3	3	3	281825905	Bush
0113	2	2	2	2	292630301	Mask
0114	1	1	1	1	292630302	Mask
0116	1	1	1	1	292627801	Jewel
0102	1	1	1	1	292605301	Cover
6037	1	1	1	1	293306303	Escutcheon
B	1	1	1	1	293325740	Top Lid Assembly
0202	1	1	1	1	293325701	Lid
0203	6	6	6	6	257711807	Spacer
C				1	293316040	Rear Panel Assembly
0403				1	293316022	Bracket
0411				1	282125901	Bush
0412				2	55060305S	T.R. Rivet
0122	6	6	6	6	290415402	Knob
0123	6	6	6	6	292615404	Knob
0124	7	7	7	7	285015401	Knob
0125	4	4	4	4	281815403	Knob
0126	2	2	2	2	281815401	Knob
0127	1	1	1	1	290415404	Knob
0130	4	4	4	4	52017039J	Bolt
0204	4	4	4	4	51480406S	B H M Screw F B 4 x 6
0211	1	1	1	1	293325702	Lid, Bottom
0212	9	9	9	9	51100406S	B H M Screw B 4 x 6
0214	1	1	1	1	332005630	Buffer
0218	4	4	4	4	293205701	Leg
0219	4	4	4	4	51440410S	B H M Screw S B 4 x 10
0302	1				293326501	Indicator, Name Plate
0303		1			293326502	Indicator, Name Plate
0304			1		293326503	Indicator, Name Plate
0305				1	293326503	Indicator, Name Plate
0311	2	2	2	2	51100305S	B H M Screw B 3 x 5
0312	1	1	1	1	257886101	Label UL Caution
0313	1	1	1	1	257886102	Label Do Not Remove -----
0314	1	1	1	1	257886103	Label See Marking -----
0319		1		1	951091101	Label L L NO
0320		1		1	282186102	Label, Fuse Caution
0321	1			1	951091102	Label, Factory No.
0324	1			1	951110101	Label, UL
0330	1	1	1	1	288686104	Label, on Power Transformer
0331		1		1	951022101	Label, Fuse Caution
0402	1	1		1	293316021	Bracket
0407	8	8	8	8	51100306S	B H M Screw B 3 x 6
0408	1	1	1	1	145525907	Bush
0413			2	2	54050300R	T L Washer OR
0414			2	2	51060316A	P H M Screw P 3 x 16
0415			2	2	53110303A	Hexagon Nut
0421			2	2	51100306S	B H M Screw B 3 x 6

U: For U.S.A. E: For Europe
C: For Canada N: For Scandinavia

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
0422	1	1	1	1	54050400R	T L Washer OR
0423	1	1	1	1	62041760W	Lug
0425	14	14	14	14	51100308S	B H M Screw B 3 x 8
0426	14	14	14	14	53110301A	Hexagon Nut
0428	4	4	4	4	51570306B	P H Tapped Screw P 3 x 6
0429	2	2	2	2	62030039W	Lug
0430	2	2	2	2	53110303E	Hexagon Nut
0502	1	1	1	1	293316050	Bracket K
0507	1	1	1	1	293312001	Insulator
0508	4	4	4	4	51100306A	B H M Screw B 3 x 6
0510	1	1	1	1	291212001	Insulator
0511	2	2	2	2	51040306A	F H M Screw F 3 x 6
0512	1	1	1	1	51570306B	P H Tapped Screw P 3 x 6
0513	14	14	14	14	51100306A	B H M Screw B 3 x 6
0514	6	6	6	6	51100306A	B H M Screw B 3 x 6
0515	2	2	2	2	293310101	Support
0516	2	2	2	2	291210102	Support
0517	2	2	2	2	51100304A	B H M Screw B 3 x 4
0518	6	6	6	6	51100406A	B H M Screw B 4 x 6
0520	1	1	1	1	291225901	Bush
0521	1	1	1	1	293312002	Insulator
0526	1	1	1	1	293316002	Bracket
0527	1	1	1	1	293316003	Bracket
0528	4	4	4	4	51100306S	B H M Screw B 3 x 6
0529	2	2	2	2	51100306S	B H M Screw B 3 x 6
0530	2	2	2	2	51570306B	P H Tapped Screw P 3 x 6
0531	2	2	2	2	51100306S	B H M Screw B 3 x 6
0532	2	2	2	2	51100306S	B H M Screw B 3 x 6
0534	1	1	1	1	293010901	Shield
0535	1	1	1	1	293310905	Shield
0602	2	2	2	2	293326701	Heat-sink
0603	1	1	1	1	293316004	Bracket
0604	1	1	1	1	293316005	Bracket
0605	8	8	8	8	51380306T	P H Tapped Screw P 3 x 6
0606	2	2	2	2	293316006	Bracket
0607	4	4	4	4	293316007	Bracket
0608	8	8	8	8	51380306T	P H Tapped Screw P 3 x 6
0609	8	8	8	8	51100306S	B H M Screw B 3 x 6
0611	8	8	8	8	51100312B	B H M Screw B 3 x 12
0613	4	4	4	4	281826703	Heat-Sink
0414	8	8	8	8	51100310E	B H M Screw B 3 x 10
0615	8	8	8	8	53110303E	Hexagon Nut
0616	8	8	8	8	53110301E	Hexagon Nut
0617	8	8	8	8	54060300R	T L Washer IR
0619	8	8	8	8	54040302N	Spring Washer
0620	4	4	4	4	291726702	Heat-Sink
0621	4	4	4	4	51100308S	B H M Screw B 3 x 8
0622	4	4	4	4	53110303E	Hexagon Nut
0624	2	2	2	2	293326702	Heat-Sink
0625	2	2	2	2	51100310B	B H M Screw B 3 x 10
0626	2	2	2	2	53110301E	Hexagon Nut
0627	2	2	2	2	53110303E	Hexagon Nut
0628	2	2	2	2	54040302N	Spring Washer
0629	2	2	2	2	54020301E	Flat Washer
0702	2	2	2	2	51100310B	B H M Screw B 3 x 10
0703	2	2	2	2	53110301E	Hexagon Nut
0704	2	2	2	2	54040302N	Spring Washer

U: For U.S.A. E: For Europe
C: For Canada N: For Scandinavia

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
0705	4	4	4	4	257711802	Spacer
0711	2	2	2	2	59110339H	Washer
0712	2	2	2	2	257700501	Clamper
0713	2	2	2	2	51100320B	B H M Screw B 3 x 20
0714	2	2	2	2	293310102	Support
0715	2	2	2	2	54040302N	Spring Washer
0716	2	2	2	2	291705501	Collar
0718	8	8	8	8	51570306S	P H Tapped Screw P 3 x 6
0720	1	1	1	1	291710901	Shield
0721	2	2	2	2	51570305B	P H Tapped Screw P 3 x 5
0802	1	1	1	1	293326703	Heat-Sink
0803	2	2	2	2	291210105	Support
0804	2	2	2	2	51380308T	P H Tapped Screw P 3 x 8
0805	2	2	2	2	51570306S	P H Tapped Screw P 3 x 6
0806	2	2	2	2	51100308B	B H M Screw P 3 x 8
0807	2	2	2	2	53110303E	Hexagon Nut
0808	2	2	2	2	54040302N	Spring Washer
0809	2	2	2	2	289225902	Bush
0810	2	2	2	2	268611801	Spacer
0812	3	3	3	3	51570408B	P H Tapped Screw P 4 x 8
0813	3	3	3	3	54020401S	Flat Washer P
0814	1	1	1	1	293316008	Bracket
0815	1	1	1	1	51570306B	P H Tapped Screw P 3 x 6
0816	1	1	1	1	54050300R	T L Washer OR
0819	1	1	1	1	51100316B	B H M Screw B 3 x 16
0820	1	1	1	1	54040302N	Spring Washer
0826	2	2	2	2	293310504	Chassis
0827	6	6	6	6	51570306B	P H Tapped Screw P 3 x 6
0828	4	4	4	4	53110501A	Hexagon Nut
0829	4	4	4	4	54040502A	Spring Washer
0830	4	4	4	4	54020501A	Flat Washer P
0832	1	1	1	1	293310103	Support
0833	1	1	1	1	54020402A	Spring Washer
0902	1	1	1	1	293310501	Chassis
0903	1	1	1	1	293310502	Chassis
0904	1	1	1	1	293310503	Chassis
0905	6	6	6	6	51570306B	P H Tapped Screw P 3 x 6
0907	1	1	1	1	293310901	Shield
0908	2	2	2	2	51570306B	P H Tapped Screw P 3 x 6
0910	2	2	2	2	289610104	Support
0911	2	2	2	2	54040302N	Spring Washer
0913	2	2	2	2	289610104	Support
0916	4	4	4	4	389610101	Support
0918	2	2	2	2	288925901	Bush
0921	1	1	1	1	293305301	Cover
0922	3	3	3	3	51570306S	P H Tapped Screw P 3 x 6
0924	1	1	1	1	293305302	Cover
0925	5	5	5	5	51570306S	P H Tapped Screw P 3 x 6
0926	1	1	1	1	288812001	Insulator
0927	2	2	2	2	293310106	Support
0928	1	1	1	1	293310107	Support
0929	3	3	3	3	54040302N	Spring Washer
0932	1	1	1	1	291012302	Contactator

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
0933	1	1	1	1	51570306B	P H Tapped Screw P 3 x 6
0934	1	1	1	1	54050300R	T L Washer
1008			1	1	285416003	Bracket
1009			2	2	51570306B	P H Tapped Screw P 3 x 6
1010			2	2	51100306S	B H M Screw B 3 x 6
1016	6	6	6	6	138200503	Clamper
1017	6	6	6	6	51570305B	P H Tapped Screw P 3 x 5
1102	1			1	293385101	Instructions, Set
1105		1	1	1	293385131	Instructions, Set
1107			1	1	288685110	Instructions, Set
1109	1			1	293385601	Schematic
1110			1	1	293385602	Schematic
1111		1		1	293385603	Schematic
1114	1			1	288585108	Instructions, Accessories
1115		1		1	288585110	Instructions, Accessories
1117	1	1	1	1	281885104	Instructions, Packing
1120	1	1	1	1	282685107	Instructions, Mounting Template
1124	1		1	1	257785401	Guarantee Card
1125	1		1	1	257785102	Instructions, Red Tag
1126	1			1	257781301	Envelope
1127			1	1	281881301	Envelope
1202	1	1	1	1	293380101	Packing Case, Inner
1203	1	1	1	1	293380102	Packing Case, Outer
1208	2	2	2	2	293380301	Cushion
1212	1	1	1	1	901403540	Polyethylene Bag
1214	1	1	1	1	901302501	Polyethylene Bag
1217	1	1	1	1	102980401	Sleeve
1218			1	1	956000004	Hang Tag
1219	2	2	2	2	273182101	Silicagel
1222	4			4	952281501	Serial No. Card
1223		4		4	952301512	Serial No. Card
1224			4	4	952301511	Serial No. Card
6036	1	1	1	1	293005302	Cover
7636				1	288286103	Label
PS01 SELECTOR SWITCH BOARD						
PS01	1	1	1	1	YD2933001	P W Board
	1	1	1	1	ZZ2933001	P W Board Assembly
SS01	1	1	1	1	SP0606004	Push Switch
JS01	1	1	1	1	YP0600036	Plug
JS02	1	1	1	1	YP0600036	Plug
JS03	1	1	1	1	YP0600040	Plug
RS01	1	1	1	1	RC0000012	Resistor, 0Ω
RS02	1	1	1	1	RC0000012	Resistor, 0Ω
PJ01 ROTARY SWITCH BOARD						
PJ01	1	1	1	1	YD2933003	P W Board
	1	1	1	1	ZZ2933003	P W Board Assembly

U: For U.S.A. E: For Europe
C: For Canada N: For Scandinavia

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
RJ01	1	1	1	1	RC0000012	Resistor, 0Ω
RJ09	1	1	1	1		
RJ10	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
RJ11	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
SJ01	1	1	1	1	SR0405008	Rotary Switch
SJ02	1	1	1	1	SR0403012	Rotary Switch
JJ01	1	1	1	1	YJ0600036	Socket
JJ02	1	1	1	1	YJ0600036	Socket
JJ03	1	1	1	1	YJ0600040	Socket
JJ04	1	1	1	1	YJ0600036	Socket
JJ05	1	1	1	1	YJ0600040	Socket
JJ06	1	1	1	1	YP1000113	Plug
JJ26	1	1	1	1		
JJ27	1	1	1	1	YJ0100085	Jack
JJ28	1	1	1	1	YJ0100085	Jack
JJ29	1	1	1	1	YJ0100087	Jack
JJ30	1	1	1	1	YJ0100087	Jack
P400	1	1	1	1	YD2933002	P400 EQ AMP. BOARD P W. Board
	1	1	1	1	ZZ2933002	P W Board Assembly
R401	1	1	1	1	RN0582314	Resistor, 82KΩ ±5% ¼W
R402	1	1	1	1	RN0582314	Resistor, 82KΩ ±5% ¼W
R403	1	1	1	1	RN0515414	Resistor, 150KΩ ±5% ¼W
R404	1	1	1	1	RN0515414	Resistor, 150KΩ ±5% ¼W
R405	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
R406	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
R407	1	1	1	1	RN0512314	Resistor, 12KΩ ±5% ¼W
R408	1	1	1	1	RN0512314	Resistor, 12KΩ ±5% ¼W
R409	1	1	1	1	RT0291114	Resistor, 910Ω ±2% ¼W
R410	1	1	1	1	RT0291114	Resistor, 910Ω ±2% ¼W
R411	1	1	1	1	RN0582314	Resistor, 82KΩ ±5% ¼W
R412	1	1	1	1	RN0582314	Resistor, 82KΩ ±5% ¼W
R413	1	1	1	1	RN0530214	Resistor, 3KΩ ±5% ¼W
R414	1	1	1	1	RN0530214	Resistor, 3KΩ ±5% ¼W
R415	1	1	1	1	RT0575314	Resistor, 75KΩ ±5% ¼W
R416	1	1	1	1	RT0575314	Resistor, 75KΩ ±5% ¼W
R417	1	1	1	1	RT0291414	Resistor, 910KΩ ±2% ¼W
R418	1	1	1	1	RT0291414	Resistor, 910KΩ ±2% ¼W
R419	1	1	1	1	RT0533114	Resistor, 330Ω ±5% ¼W
R420	1	1	1	1	RT0533114	Resistor, 330Ω ±5% ¼W
R421	1	1	1	1	RT0533014	Resistor, 33Ω ±5% ¼W
R422	1	1	1	1	RT0533014	Resistor, 33Ω ±5% ¼W
R423	1	1	1	1	RT0527414	Resistor, 270KΩ ±5% ¼W
R424	1	1	1	1	RT0527414	Resistor, 270KΩ ±5% ¼W
R425	1	1	1	1	RT0543114	Resistor, 430Ω ±5% ¼W
R426	1	1	1	1	RT0543114	Resistor, 430Ω ±5% ¼W
R427	1	1	1	1	RT0268314	Resistor, 68KΩ ±2% ¼W
R428	1	1	1	1	RT0268314	Resistor, 68KΩ ±2% ¼W
R429	1	1	1	1	RT0291314	Resistor, 91KΩ ±2% ¼W
R430	1	1	1	1	RT0291314	Resistor, 91KΩ ±2% ¼W
R431	1	1	1	1	RC0000012	Resistor, 0Ω
R432	1	1	1	1	RC0000012	Resistor, 0Ω
R433	1	1	1	1	RT0522114	Resistor, 220Ω ±5% ¼W
R434	1	1	1	1	RT0522114	Resistor, 220Ω ±5% ¼W
C401	1	1	1	1	EV4750256	Electrolytic Cap, 4.7μF 25V
C402	1	1	1	1	EV4750256	Electrolytic Cap, 4.7μF 25V

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
C403	1	1	1	1	DD1539001	Ceramic Cap, 39PF ±5% 50V
C404	1	1	1	1	DD1539001	Ceramic Cap, 39PF ±5% 50V
C405	1	1	1	1	DD1533101	Ceramic Cap, 330PF ±5% 50V
C406	1	1	1	1	DD1533101	Ceramic Cap, 330PF ±5% 50V
C407	1	1	1	1	EV3360106	Electrolytic Cap, 33μF 10V
C408	1	1	1	1	EV3360106	Electrolytic Cap, 33μF 10V
C409	1	1	1	1	DD1104001	Ceramic Cap, 4PF ±0.5PF 50V
C410	1	1	1	1	DD1104001	Ceramic Cap, 4PF ±0.5PF 50V
C411	1	1	1	1	DF1710552	Film Cap, 1μF ±20% 250V
C412	1	1	1	1	DF1710552	Film Cap, 1μF ±20% 250V
C413	1	1	1	1	DF1411201	Film Cap, 1100PF ±2% 100V
C414	1	1	1	1	DF1411201	Film Cap, 1100PF ±2% 100V
C415	1	1	1	1	DF1436201	Film Cap, 3600PF ±2% 100V
C416	1	1	1	1	DF1436201	Film Cap, 3600PF ±2% 100V
C417	1	1	1	1	EV1050352	Electrolytic Cap, 1μF ±2% 35V
C418	1	1	1	1	EV1050352	Electrolytic Cap, 1μF ±2% 35V
C419	1	1	1	1	DD1510101	Ceramic Cap, 100PF ±5% 50V
C420	1	1	1	1	DD1510101	Ceramic Cap, 100PF ±5% 50V
C421	1	1	1	1	DK1840301	Ceramic Cap, 0.04μF ±80% 50V
C422	1	1	1	1	DK1840301	Ceramic Cap, 0.04μF ±80% 50V
C423	1	1	1	1	DD1533101	Ceramic Cap, 330PF ±5% 50V
C424	1	1	1	1	DD1533101	Ceramic Cap, 330PF ±5% 50V
H401	1	1	1	1	HT108721D	Transistor, 2SA872A(D) or (E)
H402	1	1	1	1	HT108721D	Transistor, 2SA872A(D) or (E)
H403	1	1	1	1	HT108721D	Transistor, 2SA872A(D) or (E)
H404	1	1	1	1	HT108721D	Transistor, 2SA872 (D) or (E)
H405	1	1	1	1	HT318851S	Transistor, 2SC1885S,T
H406	1	1	1	1	HT318851S	Transistor, 2SC1885S,T
H407	1	1	1	1	HT109121S	Transistor, 2SA912S,T
H408	1	1	1	1	HT109121S	Transistor, 2SA912S,T
J401	1	1	1	1	YP0600036	Plug
J402	1	1	1	1	YP0600040	Plug
PE01	1	1	1	1	YD2933005	PE01 TONE AMP. BOARD P. W. Board
	1	1	1	1	ZZ2933005	P. W. Board Assembly
RE01	1	1	1	1	RT0510514	Resistor, 1MΩ ±5% ¼W
RE02	1	1	1	1	RT0510514	Resistor, 1MΩ ±5% ¼W
RE03	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
RE04	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
RE05	1	1	1	1	RT0510414	Resistor, 100KΩ ±5% ¼W
RE06	1	1	1	1	RT0510414	Resistor, 100KΩ ±5% ¼W
RE07	1	1	1	1	RT0527314	Resistor, 27KΩ ±5% ¼W
RE08	1	1	1	1	RT0527314	Resistor, 27KΩ ±5% ¼W
RE11	1	1	1	1	RT0211314	Resistor, 11KΩ ±2% ¼W
RE12	1	1	1	1	RT0211314	Resistor, 11KΩ ±2% ¼W
RE13	1	1	1	1	RT0291314	Resistor, 91KΩ ±2% ¼W
RE14	1	1	1	1	RT0291314	Resistor, 91KΩ ±2% ¼W
RE15	1	1	1	1	RT0547214	Resistor, 4.7KΩ ±5% ¼W
RE16	1	1	1	1	RT0547214	Resistor, 4.7KΩ ±5% ¼W
RE17	1	1	1	1	RT0547114	Resistor, 470Ω ±5% ¼W
RE18	1	1	1	1	RT0547114	Resistor, 470Ω ±5% ¼W
RE19	1	1	1	1	RT0522414	Resistor, 220KΩ ±5% ¼W
RE20	1	1	1	1	RT0522414	Resistor, 220KΩ ±5% ¼W
RE21	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
RE22	1	1	1	1	RT0522214	Resistor, 2.2KΩ ±5% ¼W
RE23	1	1	1	1	RT0512414	Resistor, 120KΩ ±5% ¼W
RE24	1	1	1	1	RT0512414	Resistor, 120KΩ ±5% ¼W
RE27	1	1	1	1	RT0512314	Resistor, 12KΩ ±5% ¼W
RE28	1	1	1	1	RT0512314	Resistor, 12KΩ ±5% ¼W
RE29	1	1	1	1	RT0539314	Resistor, 39KΩ ±5% ¼W
RE30	1	1	1	1	RT0539314	Resistor, 39KΩ ±5% ¼W

REF. DESIG.	U	C	E	N	PART NO	DESCRIPTION
RE31	1	1	1	1	RT0510514	Resistor, 1M Ω \pm 5% $\frac{1}{4}$ W
RE32	1	1	1	1	RT0510514	Resistor, 1M Ω \pm 5% $\frac{1}{4}$ W
RE33	1	1	1	1	RT0568214	Resistor, 6.8K Ω \pm 5% $\frac{1}{4}$ W
RE34	1	1	1	1	RT0568214	Resistor, 6.8K Ω \pm 5% $\frac{1}{4}$ W
RE35	1	1	1	1	RT0533014	Resistor, 33 Ω \pm 5% $\frac{1}{4}$ W
RE36	1	1	1	1	RT0533014	Resistor, 33 Ω \pm 5% $\frac{1}{4}$ W
RE37	1	1	1	1	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
RE38	1	1	1	1	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
RE39	1	1	1	1	RC0000012	Resistor, 0 Ω
CE01	1	1	1	1	EV1050225	Electrolytic Cap, 1 μ F 25V
CE02	1	1	1	1	EV1050225	Electrolytic Cap, 1 μ F 25V
CE03	1	1	1	1	DD1610101	Ceramic Cap, 100PF \pm 10% 50V
CE04	1	1	1	1	DD1610101	Ceramic Cap, 100PF \pm 10% 50V
CE05	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CE06	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CE07	1	1	1	1	EV3360106	Electrolytic Cap, 33 μ F 10V
CE08	1	1	1	1	EV3360106	Electrolytic Cap, 33 μ F 10V
CE09	1	1	1	1	EV4750256	Electrolytic Cap, 4.7 μ F 25V
CE10	1	1	1	1	EV4750256	Electrolytic Cap, 4.7 μ F 25V
CE11	1	1	1	1	EA1070109	Electrolytic Cap, 100 μ F 10V
CE12	1	1	1	1	EA1070109	Electrolytic Cap, 100 μ F 10V
CE13	1	1	1	1	EV2250256	Electrolytic Cap, 2.2 μ F 25V
CE14	1	1	1	1	EV2250256	Electrolytic Cap, 2.2 μ F 25V
CE15	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CE16	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CE17	1	1	1	1	DD1610001	Ceramic Cap, 10PF \pm 10% 50V
CE18	1	1	1	1	DD1610001	Ceramic Cap, 10PF \pm 10% 50V
CE19	1	1	1	1	EV3360106	Electrolytic Cap, 33 μ F 10V
CE20	1	1	1	1	EV3360106	Electrolytic Cap, 33 μ F 10V
CE21	1	1	1	1	EV1050352	Electrolytic Cap, 1 μ F 35V
CE22	1	1	1	1	EV1050352	Electrolytic Cap, 1 μ F 35V
CE23	1	1	1	1	EA1070259	Electrolytic Cap, 100 μ F 25V
CE24	1	1	1	1	EA1070259	Electrolytic Cap, 100 μ F 25V
CE25	1	1	1	1	DD1205005	Ceramic Cap, 5PF \pm 1PF 50V
CE26	1	1	1	1	DD1205005	Ceramic Cap, 5PF \pm 1PF 50V
CE27	1	1	1	1	EV4750256	Electrolytic Cap, 4.7 μ F 25V
CE28	1	1	1	1	EV4750256	Electrolytic Cap, 4.7 μ F 25V
HE01	1	1	1	1	HT108361E	Transistor, 2SA836 E or F
HE02	1	1	1	1	HT108361E	Transistor, 2SA836 E or F
HE03	1	1	1	1	HT108361E	Transistor, 2SA836 E or F
HE04	1	1	1	1	HT108361E	Transistor, 2SA836 E or F
HE05	1	1	1	1	HT313452A	Transistor, 2SC1345 D or E
HE06	1	1	1	1	HT313452A	Transistor, 2SC1345 D or E
HE07	1	1	1	1	HT108361E0	Transistor, 2SA836 E or F
HE08	1	1	1	1	HT108361E0	Transistor, 2SA836 E or F
HE09	1	1	1	1	HT108361E0	Transistor, 2SA836 E or F
HE10	1	1	1	1	HT108361E0	Transistor, 2SA836 E or F
HE11	1	1	1	1	HT313452A	Transistor, 2SC1345 D or E
HE12	1	1	1	1	HT313452A	Transistor, 2SC1345 D or E
JE13	1	1	1	1	YP1000113	Plug
JE01	1	1	1	1	YP1000113	Plug
JE11	1	1	1	1	YP1000113	Plug
JE12	1	1	1	1	YJ0600077	Jack
PF01	2	2	2	2	YD2933006	P W Board
	2	2	2	2	ZZ2933006	P W Board Assembly
RF01	2	2	2	2	RX0104003	Variable Resist, 100K Ω (B)w/click
RF02	2	2	2	2	RX0104003	Variable Resist, 100K Ω (B)w/click
RF03	2	2	2	2	RX0104003	Variable Resist, 100K Ω (B)w/click
RF04	2	2	2	2	GD0518314	Resistor, 18K Ω \pm 5% $\frac{1}{4}$ W

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
RF05	2	2	2	2	GD0518314	Resistor, 18K Ω \pm 5% $\frac{1}{4}$ W
RF06	2	2	2	2	GD0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
RF07	2	2	2	2	GD0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
RF08	2	2	2	2	GD0556214	Resistor, 5.6K Ω \pm 5% $\frac{1}{4}$ W
RF09	2	2	2	2	GD0556214	Resistor, 5.6K Ω \pm 5% $\frac{1}{4}$ W
RF10	2	2	2	2	RC0000012	Resistor, 0 Ω
RF11	2	2	2	2	GD0527214	Resistor, 2.7K Ω \pm 5% $\frac{1}{4}$ W
RF12	2	2	2	2	GD0556214	Resistor, 5.6K Ω \pm 5% $\frac{1}{4}$ W
RF13	2	2	2	2	GD0556214	Resistor, 5.6K Ω \pm 5% $\frac{1}{4}$ W
RF14	2	2	2	2	GD0539414	Resistor, 390K Ω \pm 5% $\frac{1}{4}$ W
CF01	2	2	2	2	DF1515301	Film Cap, 0.015 μ F \pm 5% 50V
CF02	2	2	2	2	DF1515301	Film Cap, 0.015 μ F \pm 5% 50V
CF03	2	2	2	2	DF1568201	Film Cap, 0.0068 μ F \pm 5% 50V
CF04	2	2	2	2	DD1539101	Ceramic Cap, 390PF \pm 5% 50V
CF05	2	2	2	2	DF1582201	Film Cap, 0.0082 μ F \pm 5% 50V
CF06	2	2	2	2	DF1510301	Film Cap, 0.01 μ F \pm 5% 50V
CF07	2	2	2	2	DF1510301	Film Cap, 0.01 μ F \pm 5% 50V
JF01	2	2	2	2	YP1000113	Plug
JF11	2	2	2	2	YP1000113	Plug
PH01	1	1	1	1	YD2933004	P.W. Board
	1	1	1	1	ZZ2933004	P.W. Board Assembly
RH01	1	1	1	1	GD0510014	Resistor, 10 Ω \pm 5% $\frac{1}{4}$ W
RH02	1	1	1	1	GD0510014	Resistor, 10 Ω \pm 5% $\frac{1}{4}$ W
RH03	1	1	1	1	GD0568414	Resistor, 680K Ω \pm 5% $\frac{1}{4}$ W
RH04	1	1	1	1	GD0568414	Resistor, 680K Ω \pm 5% $\frac{1}{4}$ W
RH05	1	1	1	1	GD0512314	Resistor, 12K Ω \pm 5% $\frac{1}{4}$ W
RH06	1	1	1	1	GD0512314	Resistor, 12K Ω \pm 5% $\frac{1}{4}$ W
RH07	1	1	1	1	GD0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
RH08	1	1	1	1	GD0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
RH09	1	1	1	1	GD0520414	Resistor, 200K Ω \pm 5% $\frac{1}{4}$ W
RH10	1	1	1	1	GD0520414	Resistor, 200K Ω \pm 5% $\frac{1}{4}$ W
RH11	1	1	1	1	GD0551414	Resistor, 510K Ω \pm 5% $\frac{1}{4}$ W
RH12	1	1	1	1	GD0551414	Resistor, 510K Ω \pm 5% $\frac{1}{4}$ W
RH13	1	1	1	1	GD0568214	Resistor, 6.8K Ω \pm 5% $\frac{1}{4}$ W
RH14	1	1	1	1	GD0568214	Resistor, 6.8K Ω \pm 5% $\frac{1}{4}$ W
RH15	1	1	1	1	GD0510314	Resistor, 10K Ω \pm 5% $\frac{1}{4}$ W
RH16	1	1	1	1	GD0510314	Resistor, 10K Ω \pm 5% $\frac{1}{4}$ W
RH17	1	1	1	1	GD0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
RH18	1	1	1	1	GD0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
RH19	1	1	1	1	GD0547114	Resistor, 470 Ω \pm 5% $\frac{1}{4}$ W
RH20	1	1	1	1	GD0547114	Resistor, 470 Ω \pm 5% $\frac{1}{4}$ W
RH21	1	1	1	1	GD0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
RH22	1	1	1	1	GD0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
RH23	1	1	1	1	GD0515314	Resistor, 15K Ω \pm 5% $\frac{1}{4}$ W
RH24	1	1	1	1	GD0515314	Resistor, 15K Ω \pm 5% $\frac{1}{4}$ W
RH25	1	1	1	1	RC0000012	Resistor, 0 Ω
RH26	1	1	1	1	RC0000012	Resistor, 0 Ω
RH27	1	1	1	1	RC0000012	Resistor, 0 Ω
RH28	1	1	1	1	GD0556414	Resistor, 560K Ω \pm 5% $\frac{1}{4}$ W
RH29	1	1	1	1	GD0556414	Resistor, 560K Ω \pm 5% $\frac{1}{4}$ W
RH30	1	1	1	1	GD0556414	Resistor, 560K Ω \pm 5% $\frac{1}{4}$ W
RH31	1	1	1	1	GD0556414	Resistor, 560K Ω \pm 5% $\frac{1}{4}$ W
RH32	1	1	1	1	GD0510514	Resistor, 1M Ω \pm 5% $\frac{1}{4}$ W
RH33	1	1	1	1	GD0510514	Resistor, 1M Ω \pm 5% $\frac{1}{4}$ W
CH01	1	1	1	1	DF1568301	Film Cap, 0.068 μ F \pm 5% 50V
CH02	1	1	1	1	DF1568301	Film Cap, 0.068 μ F \pm 5% 50V
CH03	1	1	1	1	DF1568301	Film Cap, 0.068 μ F \pm 5% 50V
CH04	1	1	1	1	DF1568301	Film Cap, 0.068 μ F \pm 5% 50V
CH05	1	1	1	1	DF1518201	Film Cap, 0.0018 μ F \pm 5% 50V
CH06	1	1	1	1	DF1518201	Film Cap, 0.0018 μ F \pm 5% 50V
CH07	1	1	1	1	DF1515201	Film Cap, 0.0015 μ F \pm 5% 50V
CH08	1	1	1	1	DF1515201	Film Cap, 0.0015 μ F \pm 5% 50V
CH09	1	1	1	1	DF1512201	Film Cap, 0.0012 μ F \pm 5% 50V
CH10	1	1	1	1	DF1512201	Film Cap, 0.0012 μ F \pm 5% 50V

U: For U.S.A. E: For Europe
C: For Canada N: For Scandinavia

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
CH11	1	1	1	1	DF1512201	Film Cap, 0.0012 μ F \pm 5% 50V
CH12	1	1	1	1	DF1512201	Film Cap, 0.0012 μ F \pm 5% 50V
CH13	1	1	1	1	DF1527301	Film Cap, 0.027 μ F \pm 5% 50V
CH14	1	1	1	1	DF1527301	Film Cap, 0.027 μ F \pm 5% 50V
CH15	1	1	1	1	DF1510301	Film Cap, 0.01 μ F \pm 5% 50V
CH16	1	1	1	1	DF1510301	Film Cap, 0.01 μ F \pm 5% 50V
CH17	1	1	1	1	DF1722401	Film Cap, 0.22 μ F \pm 20% 50V
CH18	1	1	1	1	DF1722401	Film Cap, 0.22 μ F \pm 20% 50V
CH19	1	1	1	1	DF6568101	Film Cap, 680PF \pm 5% 50V
CH20	1	1	1	1	DF6568101	Film Cap, 680PF \pm 5% 50V
CH21	1	1	1	1	EV4750356	Film Cap, 4.7 μ F 35V
CH22	1	1	1	1	EV4750356	Film Cap, 4.7 μ F 35V
CH23	1	1	1	1	DF1533301	Film Cap, 0.033 μ F \pm 5% 50V
CH24	1	1	1	1	DF1533301	Film Cap, 0.033 μ F \pm 5% 50V
CH25	1	1	1	1	DD1533101	Ceramic Cap, 330PF \pm 5% 50V
CH26	1	1	1	1	DD1533101	Ceramic Cap, 330PF \pm 5% 50V
CH27	1	1	1	1	DK1840302	Ceramic Cap, 0.04 μ F \pm 20% %
CH28	1	1	1	1	DK1840302	Ceramic Cap, 0.04 μ F \pm 20% %
CH29	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CH30	1	1	1	1	DD1104001	Ceramic Cap, 4PF \pm 0.5PF 50V
CH31	1	1	1	1	DF1515201	Film Cap, 0.0015 μ F \pm 5% 50V
CH32	1	1	1	1	DF1515201	Film Cap, 0.0015 μ F \pm 5% 50V
HH01	1	1	1	1	HT108362A	Transistor, 2SA836D or E
HH02	1	1	1	1	HT108362A	Transistor, 2SA836D or E
HH03	1	1	1	1	HT313452A	Transistor, 2SC1345D or E
HH04	1	1	1	1	HT313452A	Transistor, 2SC1345D or E
SH01	1	1	1	1	SP0406007	Push Switch
JH01	1	1	1	1	YP0600036	Plug
JH02	1	1	1	1	YP1000113	Plug
JH24						
P700	2	2	2	2	YD2917003	P.W.Board
	2	2	2	2	ZZ2933103	P.W.Board Assembly
R701	2	2	2	2	RT0547414	Resistor, 470K Ω \pm 5% $\frac{1}{4}$ W
R702	2	2	2	2	RT0510214	Resistor, 1K Ω \pm 5% $\frac{1}{4}$ W
R703	2	2	2	2	RT0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
R704	2	2	2	2	RT0515114	Resistor, 150 Ω \pm 5% $\frac{1}{4}$ W
R705	2	2	2	2	RT0515314	Resistor, 15K Ω \pm 5% $\frac{1}{4}$ W
R706	2	2	2	2	RT0539214	Resistor, 3.9K Ω \pm 5% $\frac{1}{4}$ W
R707	2	2	2	2	GU0510312	Resistor, 10K Ω \pm 5% $\frac{1}{4}$ W
R708	2	2	2	2	RT0510314	Resistor, 10K Ω \pm 5% $\frac{1}{4}$ W
R709	2	2	2	2	RT0510214	Resistor, 1K Ω \pm 5% $\frac{1}{4}$ W
R710	2	2	2	2	RT0522414	Resistor, 220K Ω \pm 5% $\frac{1}{4}$ W
R711	2	2	2	2	RT0562214	Resistor, 6.2K Ω \pm 5% $\frac{1}{4}$ W
R712	2	2	2	2	RT0513314	Resistor, 13K Ω \pm 5% $\frac{1}{4}$ W
R713	2	2	2	2	RT0512214	Resistor, 1.2K Ω \pm 5% $\frac{1}{4}$ W
R714	2	2	2	2	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
R715	2	2	2	2	RT0556014	Resistor, 56 Ω \pm 5% $\frac{1}{4}$ W
R716	2	2	2	2	GJ0515201	Resistor, 1.5K Ω \pm 5% 1W
R717	2	2	2	2	GJ0515201	Resistor, 1.5K Ω \pm 5% 1W
R718	2	2	2	2	RT0568114	Resistor, 680 Ω \pm 5% $\frac{1}{4}$ W
R719	2	2	2	2	RT0568114	Resistor, 680 Ω \pm 5% $\frac{1}{4}$ W
R720	2	2	2	2	RT0530114	Resistor, 300 Ω \pm 5% $\frac{1}{4}$ W
F721	2	2	2	2	RT0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
R722	2	2	2	2	RT0527314	Resistor, 27K Ω \pm 5% $\frac{1}{4}$ W
R723	2	2	2	2	RT0510414	Resistor, 100K Ω \pm 5% $\frac{1}{4}$ W
R724	2	2	2	2	RT0547314	Resistor, 47K Ω \pm 5% $\frac{1}{4}$ W
R725	2	2	2	2	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
R726	2	2	2	2	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
R727	2	2	2	2	RT0502214	Resistor, 2.2 Ω \pm 5% $\frac{1}{4}$ W

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
R728	2	2	2	2	RC0000012	Resistor, 0 Ω
R729	2	2	2	2	RT0518114	Resistor, 180 Ω \pm 5% $\frac{1}{4}$ W
R730	2	2	2	2	RT0515114	Resistor, 150 Ω \pm 5% $\frac{1}{4}$ W
R731	2	2	2	2	RT0533214	Resistor, 3.3K Ω \pm 5% $\frac{1}{4}$ W
R732	2	2	2	2	RT0518114	Resistor, 180 Ω \pm 5% $\frac{1}{4}$ W
R733	2	2	2	2	RT0515114	Resistor, 150 Ω \pm 5% $\frac{1}{4}$ W
R734	2	2	2	2	GF0510112	Resistor, 100 Ω \pm 5% $\frac{1}{2}$ W
R735	2	2	2	2	GF0510112	Resistor, 100 Ω \pm 5% $\frac{1}{2}$ W
R736	2	2	2	2	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
R737	2	2	2	2	RT0510114	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W
R738	2	2	2	2	GJ0502202	Resistor, 2.2 Ω \pm 5% 2W
R739	2	2	2	2	GJ0510002	Resistor, 10 Ω \pm 5% 2W
R740	2	2	2	2	BX1020201	Resistor, 0.2+0.2 Ω 5W
R741	2	2	2	2	RA0202013	Trimming Resistor, 2K Ω (B)
R742	2	2	2	2	RA0202013	Trimming Resistor, 2K Ω (B)
R743	2	2	2	2	RC0000012	Resistor, 0 Ω
R745	2	2	2	2	RT0556114	Resistor, 560 Ω \pm 5% $\frac{1}{4}$ W
R747	2	2	2	2	RT0582014	Resistor, 82 Ω \pm 5% $\frac{1}{4}$ W
L701	2	2	2	2	LC2202001	Choke Coil, 2 μ H
C701	2	2	2	2	DF1710552	Film Cap, 1 μ F \pm 20% 250V
C702	2	2	2	2	EE4760162	Electrolytic Cap, 47 μ F \pm 20% 16V
C703	2	2	2	2	EA1060169	Electrolytic Cap, 10 μ F \pm 20% 16V
C704	2	2	2	2	EA1060169	Electrolytic Cap, 10 μ F \pm 20% 16V
C705	2	2	2	2	DD1510101	Ceramic Cap, 100PF \pm 5% 50V
C706	2	2	2	2	DK1610201	Ceramic Cap, 1000PF \pm 10% 50V
C707	2	2	2	2	DK1622151	Ceramic Cap, 220PF \pm 10% 500V
C708	2	2	2	2	DD1105050	Ceramic Cap, 5PF \pm 0.25P 500V
C709	2	2	2	2	DD1515150	Ceramic Cap, 150PF \pm 5% 500V
C710	2	2	2	2	DF1710452	Film Cap, 0.1 μ F \pm 20% 200V
C711	2	2	2	2	DF1710452	Film Cap, 0.1 μ F \pm 20% 200V
C712	2	2	2	2	DD1622151	Ceramic Cap, 220PF \pm 10% 500V(SL)
C713	2	2	2	2	DD1622151	Ceramic Cap, 220PF \pm 10% 500V(SL)
C714	2	2	2	2	DF1722305	Ceramic Cap, 0.022 μ F \pm 20% 50V
C715	2	2	2	2	DF1722305	Ceramic Cap, 0.022 μ F \pm 20% 50V
C716	2	2	2	2	DF1722305	Ceramic Cap, 0.022 μ F \pm 20% 50V
C719	2	2	2	2	DF1710405	Ceramic Cap, 0.1 μ F \pm 20% 50V
C720	2	2	2	2	DF1722354	Ceramic Cap, 0.022 μ F \pm 20% 200V
C721	2	2	2	2	DK1650150	Ceramic Cap, 500PF \pm 10% 500V
C722	2	2	2	2	DF1722354	Ceramic Cap, 0.022 μ F \pm 20% 200V
H701	2	2	2	2	HT313271T	Transistor, 2SC1327 T.U
H702	2	2	2	2	HT313271T	Transistor, 2SC1327 T.U
H703	2	2	2	2	HT107212A	Transistor, 2SA721 S.T
H704	2	2	2	2	HT313272A	Transistor, 2SC1327 S.T.
H705	2	2	2	2	HT309452A	Transistor, 2SC945 Q.R
H706	2	2	2	2	HT107332A	Transistor, 2SA733 P.Q
H707	2	2	2	2	HT309452A	Transistor, 2SC945 Q.R.
H708	2	2	2	2	HT107332A	Transistor, 2SA733 P.Q
H709	2	2	2	2	HT304961B	Transistor, 2SC496 O
H710	2	2	2	2	HV0000705	Varistor, S3016 R
H711	2	2	2	2	HT107941Q	Transistor, 2SA794 Q.R
H712	2	2	2	2	HT315671Q	Transistor, 2SC1567 O.R
H713	2	2	2	2	HT316251A	Transistor, 2SC1625 O.Y
H714	2	2	2	2	HT108151A	Transistor, 2SA815 O.Y
H715	2	2	2	2	HD3002509	Diode, WZ-150 (15V \pm 5%)
H716	2	2	2	2	HD3002509	Diode, WZ-150 (15V \pm 5%)
H717	2	2	2	2	HD2000321	Diode, 1S2471 (Black)
H718	3	2	2	2	HD2000321	Diode, 1S2471 (Black)
H720	2	2	2	2	HD2001105	Diode, 1S1555
H721	2	2	2	2	HD2001105	Diode, 1S1555
H719	2	2	2	2	HH0000703	Thermistor, SDT100(1K Ω @25 $^{\circ}$ C)
H722	2	2	2	2	HH0000703	Thermistor, SDT100(1K Ω @25 $^{\circ}$ C)
H723	2	2	2	2	HH0000703	Thermistor, SDT100(1K Ω @25 $^{\circ}$ C)
J701	2	2	2	2	YP1000109	Plug
J702	2	2	2	2	YP1000109	Plug

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REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
J703 ? J708	2	2	2	2	YP1000113	Plug
J709	2	2	2	2	YP0600054	Plug
J710	2	2	2	2	YP0600030	Plug
J711	2	2	2	2	YP1000109	Plug
J712	2	2	2	2	YP1000109	Plug
PN01 RELAY BOARD						
PN01	1	1	1	1	YD2933007	P.W. Board
	1	1	1	1	ZZ2933007	P.W. Board Assembly
RN01	1	1	1	1	GU0556212	Resistor, 5.6K Ω $\pm 5\%$ 1/4W
RN02	1	1	1	1	GU0556212	Resistor, 5.6K Ω $\pm 5\%$ 1/4W
RN03	1	1	1	1	RT0527314	Resistor, 27K Ω $\pm 5\%$ 1/4W
RN04	1	1	1	1	RT0533214	Resistor, 3.3K Ω $\pm 5\%$ 1/4W
RN05	1	1	1	1	RT0575314	Resistor, 75K Ω $\pm 5\%$ 1/4W
RN06	1	1	1	1	RT0547414	Resistor, 470K Ω $\pm 5\%$ 1/4W
RN07	1	1	1	1	RT0539314	Resistor, 39K Ω $\pm 5\%$ 1/4W
RN08	1	1	1	1	GJ0547101	Resistor, 470 Ω $\pm 5\%$ 1W
RN09	1	1	1	1	GJ0533102	Resistor, 330 Ω $\pm 5\%$ 2W
RN10	1	1	1	1	GJ0533102	Resistor, 330 Ω $\pm 5\%$ 2W
RN11	1	1	1	1	GJ0515101	Resistor, 150 Ω $\pm 5\%$ 1W
RN12	1	1	1	1	GJ0515101	Resistor, 150 Ω $\pm 5\%$ 1W
CN01	1	1	1	1	DK1810351	Ceramic Cap, 0.01 μ F 500V
CN02	1	1	1	1	DK1810351	Ceramic Cap, 0.01 μ F 500V
CN03	1	1	1	1	EA1060509	Electrolytic Cap, 10 μ F 50V
CN04	1	1	1	1	EA4760169	Electrolytic Cap, 47 μ F 16V
CN05	1	1	1	1	EA2270109	Electrolytic Cap, 220 μ F 10V
LN01	1	1	1	1	LY2024006	Relay, MY2, 24V
HN01	1	1	1	1	HD2001103	Diode, DS131B
HN02	1	1	1	1	HT309452A	Transistor, 2SC945 Q.R
HN03	1	1	1	1	HT313183A	Transistor, 2SC1318 P.Q.R
HN04	1	1	1	1	HT313183A	Transistor, 2SC1318 P.Q.R
HN05	1	1	1	1	HD2000110	Diode, 10D-2
JN01 ? JN14	1	1	1	1	YP1000113	Plug
P800 POWER SUPPLY BOARD						
P800	1	1	1	1	YD2933008	P.W. Board
	1	1	1	1	ZZ2933008	P.W. Board Assembly
R801	1	1	1	1	RC0000012	Resistor, 0 Ω
R802	1	1	1	1	GJ0504701	Resistor, 4.7 Ω $\pm 5\%$ 1W
R803	1	1	1	1	GJ0504701	Resistor, 4.7 Ω $\pm 5\%$ 1W
R804	1	1	1	1	RT0582214	Resistor, 8.2K Ω $\pm 5\%$ 1/4W
R805	1	1	1	1	RT0582214	Resistor, 8.2K Ω $\pm 5\%$ 1/4W
R806	1	1	1	1	RT0568214	Resistor, 6.8K Ω $\pm 5\%$ 1/4W
R807	1	1	1	1	RT0568214	Resistor, 6.8K Ω $\pm 5\%$ 1/4W
R808	1	1	1	1	RT0510214	Resistor, 1K Ω $\pm 5\%$ 1/4W
R809	1	1	1	1	RT0510214	Resistor, 1K Ω $\pm 5\%$ 1/4W
R810	1	1	1	1	GU0527212	Resistor, 2.7K Ω $\pm 5\%$ 1/4W
R811	1	1	1	1	RT0533314	Resistor, 33K Ω $\pm 5\%$ 1/4W
R812	1	1	1	1	RT0533314	Resistor, 33K Ω $\pm 5\%$ 1/4W
R813	1	1	1	1	RT0512314	Resistor, 12K Ω $\pm 5\%$ 1/4W
R814	1	1	1	1	RT0533314	Resistor, 33K Ω $\pm 5\%$ 1/4W
R815	1	1	1	1	RA0502013	Trimming Resist, 4.7K Ω (B) 0.15W
R816	1	1	1	1	RA0502013	Trimming Resist, 4.7K Ω (B) 0.15W
R817	1	1	1	1	RT0522114	Resistor, 220 Ω $\pm 5\%$ 1/4W
R818	1	1	1	1	RT0522114	Resistor, 220 Ω $\pm 5\%$ 1/4W
R819	1	1	1	1	RT0515314	Resistor, 15K Ω $\pm 5\%$ 1/4W
R820	1	1	1	1	RT0515314	Resistor, 15K Ω $\pm 5\%$ 1/4W

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
R821	1	1	1	1	RT0524314	Resistor, 24K Ω $\pm 5\%$ 1/4W
R822	1	1	1	1	RT0524314	Resistor, 24K Ω $\pm 5\%$ 1/4W
R823	1	1	1	1	RC0000012	Resistor, 0 Ω
C801	1	1	1	1	DK1810351	Ceramic Cap, 0.01 μ F 500V
C802	1	1	1	1	DK1810351	Ceramic Cap, 0.01 μ F 500V
C803	1	1	1	1	EA4770631	Electrolytic Cap, 470 μ F 63V
C804	1	1	1	1	EA4770631	Electrolytic Cap, 470 μ F 63V
C805	1	1	1	1	DF1733301	Film Cap, 0.033 μ F $\pm 20\%$ 50V
C806	1	1	1	1	DF1733301	Film Cap, 0.033 μ F $\pm 20\%$ 50V
C807	1	1	1	1	EA1070169	Electrolytic Cap, 100 μ F 16V
C808	1	1	1	1	EA1060509	Electrolytic Cap, 10 μ F 50V
C809	1	1	1	1	EA1060509	Electrolytic Cap, 10 μ F 50V
C810	1	1	1	1	EA1070509	Electrolytic Cap, 100 μ F 50V
C811	1	1	1	1	EA1070509	Electrolytic Cap, 100 μ F 50V
C812	1	1	1	1	EA1070359	Electrolytic Cap, 100 μ F 35V
C813	1	1	1	1	EA1070359	Electrolytic Cap, 100 μ F 35V
C814	1	1	1	1	EA1070359	Electrolytic Cap, 100 μ F 35V
C815	1	1	1	1	EA1070359	Electrolytic Cap, 100 μ F 35V
C816	1	1	1	1	EA1070169	Electrolytic Cap, 100 μ F 16V
C817	1	1	1	1	EA1070169	Electrolytic Cap, 100 μ F 16V
H801	1	1	1	1	HD2001303	Diode, DS133B (200V)
H802	1	1	1	1	HD2001303	Diode, DS133B (200V)
H803	1	1	1	1	HT403131D	Transistor, 2SD313 D or E
H804	1	1	1	1	HT205071D	Transistor, 2SB507 D or E
H805	1	1	1	1	HT313182B	Transistor, 2SC1318 Q or R
H806	1	1	1	1	HT107202B	Transistor, 2SA720 Q or R
H807	1	1	1	1	HT313182B	Transistor, 2SC1318 Q or R
H808	1	1	1	1	HT107202B	Transistor, 2SA720 Q or R
H809	1	1	1	1	HT313842F	Transistor, 2SC1384 Q or R
H810	1	1	1	1	HT106842F	Transistor, 2SA684 Q or R
H811	1	1	1	1	HD3002409	Diode, WZ-120
H812	1	1	1	1	HD2000321	Diode, IS2471
J801 ? J810	1	1	1	1	YP1000113	Plug
R001	1	1	1	1	RT0539414	Resistor, 390K Ω $\pm 5\%$ 1/4W
R002	1	1	1	1	RT0539414	Resistor, 390K Ω $\pm 5\%$ 1/4W
R003	1	1	1	1	RT0510414	Resistor, 100K Ω $\pm 5\%$ 1/4W
R004	1	1	1	1	RT0510414	Resistor, 100K Ω $\pm 5\%$ 1/4W
R005	1	1	1	1	RT0539414	Resistor, 390K Ω $\pm 5\%$ 1/4W
R006	1	1	1	1	RT0539414	Resistor, 390K Ω $\pm 5\%$ 1/4W
R007	1	1	1	1	RT0510414	Resistor, 100K Ω $\pm 5\%$ 1/4W
R008	1	1	1	1	RT0510414	Resistor, 100K Ω $\pm 5\%$ 1/4W
R009	1	1	1	1	RS0254008	Variable Resistor, 250K (MN)
R010	1	1	1	1	RM0254031	Variable Resistor, 250K (B) x 2
R011	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R012	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R013	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R014	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R015	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R016	1	1	1	1	RT0518314	Resistor, 18K Ω $\pm 5\%$ 1/4W
R017	1	1	1	1	GJ0522202	Resistor, 2.2K Ω $\pm 5\%$ 2W
R018	1	1	1	1	GJ0522202	Resistor, 2.2K Ω $\pm 5\%$ 2W
C001 ? C008	1	1	1	1	DK181030	Ceramic Cap, 0.01 μ F $\pm 8\%$ 50V
C009	1	1	1	1	DF1710452	Film Cap, 0.1 μ F $\pm 20\%$ 200V
C010	1	1	1	1	ES1390552	Electrolytic Cap, 13,000 μ F x2 55V
C011			1		DF1722380	Film Cap, 0.022 μ F 1000V
C012			1		DF1722380	Film Cap, 0.022 μ F 1000V

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REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
F001	1	1			FS1050004	Fuse, 5A
F001				1	FS1040080	Fuse, 4A
F001			1		FS1040006	Fuse, 4A
F002			1		FS1050004	Fuse, 5A
M001	1	1	1	1	IN1005004	Lamp, 5V 30mA
G001	1	1			BF1040003	Printed Comp, 0.1μF + 120Ω
G002	1	1			BF1040003	Printed Comp, 0.1μF + 120Ω
S001	1	1	1	1	SR0602013	Rotary Switch, TONE
S002	1	1	1	1	SP0402013	Push Switch, MAIN-REMOTE
S003	1	1	1	1	SP0202010	Push Switch, POWER
L001	1	1			TS6140601	Power Transformer
L001			1	1	TS6140602	Power Transformer
H001	1	1	1	1	HD2001705	Diode, S5188
H002	1	1	1	1	4611035000	Transistor, SJ2518
H003	1	1	1	1	4621041000	Transistor, SJ2517
H004	1	1	1	1	4611035000	Transistor, SJ2518
H005	1	1	1	1	4621041000	Transistor, SJ2517
J001	1	1	1	1	YT0208008	Terminal, 8P RCA Pin Jack
J002	1	1	1	1	YT0202011	Terminal, 2P RCA Pin Jack
J003	1	1	1	1	YT0204008	Terminal, 4P RCA Pin Jack
J004	1	1	1	1	YT0204008	Terminal, 4P RCA Pin Jack
J005	1	1	1	1	YJ1100016	Socket, DIN
J006	1	1	1	1	YJ1100016	Socket, DIN
J007	1	1	1	1	YT0204011	Terminal, 4P RCA Pin Jack
J008	1	1	1	1	YT0304012	Terminal Speaker
J009	1	1	1	1	YT0304012	Terminal Speaker
J010	1	1	1	1	YJ0100065	Jack, Head Phone
J011	1	1	1	1	YJ0500020	Socket, TR Socket
J012	1	1	1	1	YJ0500020	Socket, TR Socket
J013	1	1	1	1	YJ0500020	Socket, TR Socket
J014	1	1	1	1	YJ0500020	Socket, TR Socket
J015	1	1	1	1	YJ0600085	Jack, 3P
J016	1	1	1	1	YJ0600086	Jack, 3P
J017	1	1	1	1	YJ0600091	Jack, 6P
J018	1	1	1	1	YJ0600092	Jack, 6P
J019	1	1	1	1	YT0101005	Terminal, Ground
J020	1	1	1	1	YL0105012	Terminal, 5P
J021	1	1			YJ0800012	Jack, Fuse Holder
J022	1	1	1		YJ0400056	Jack, AC Outlet
J023	1	1	1		YJ0400056	Jack, AC Outlet
J024	1	1	1		YJ0400056	Jack, AC Outlet
J025	1	1	1		YJ0400056	Jack, AC Outlet
J026	1	1	1		YJ0400056	Jack, AC Outlet
J027	1	1	1		YJ4000046	Jack, AC Outlet
J028			1	1	BY0314001	Terminal
J021			1	1	YJ0800022	Jack, 20mm Fuse Holder
J029		1			YJ0800018	Socket, Fuse Holder
J030			1		YP0400056	Inlet
J031			1		YT0101005	Terminal Ground
PR01			1		YD2933009	PR01 FUSE BOARD
			1		ZZ2933009	P.W. Board
PR01			1		YD2933010	P.W. Board Assembly
			1		ZZ2933010	P.W. Board
JR01			1	1	YJ0800020	Jack, Fuse Holder
JR02			1	1	YJ0800020	Jack, Fuse Holder
JR03			1	1	YJ0800020	Jack, Fuse Holder
JR04			1	1	YJ0800020	Jack, Fuse Holder
JR05			1	1	YJ0800020	Jack, Fuse Holder

REF. DESIG.	U	C	E	N	PART NO.	DESCRIPTION
JR06			1	1	YJ0800020	Jack, Fuse Holder
JR07			1	1	YP1000099	Jack, Pin
JR08			1	1	YP1000099	Jack, Pin
JR09			1	1	YP1000099	Plug, Pin
JR10			1	1	YP1000099	Plug, Pin
JR11			1	1	YP1000099	Plug, Pin
JR12			1	1	YP1000099	Plug, Pin
FR01			1		FS1015003	Fuse, 1.5A
FR02			1		FS1015003	Fuse, 1.5A
FR03			1		FS1015003	Fuse, 1.5A
FR01			1		FS1016080	Fuse, 1.6A SEMKO
FR02			1		FS1016080	Fuse, 1.6A SEMKO
FR03			1		FS1016080	Fuse, 1.6A SEMKO

SERVICE INFORMATION FOR EUROPEAN MODEL

The information contained herein includes rear panel and main chassis component locations, voltage conversion, schematic diagram and technical specifications. For the alignment procedures, test equipment, and repairing hints, refer to the original service manual.

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SPECIFICATIONS

AUDIO CIRCUITS:

RATED POWER OUTPUT	75 WATTS PER CHANNEL, CONTINUOUS AVERAGE POWER, BOTH CHANNELS DRIVEN.
POWER BAND	20Hz to 20kHz
TOTAL HARMONIC DISTORTION ..	0.1%
LOAD IMPEDANCE	80HMS

Frequency Response @ 1 Watt Output 5 Hz to 50 kHz ± 1 dB
 Intermodulation Distortion Less than 0.1%

Preamplifier Section:

Total Harmonic Distortion at Rated Output Level 0.05%
 Intermodulation Distortion (SMPTE) 0.02%

Frequency Response

Phono (Maximum variation from RIAA Standard) 20 Hz to 20 kHz ± 0.5 dB
 Tape or Aux 15 Hz to 50 kHz ± 1 dB

Signal to Noise Ratio (at rated output)

Aux Input (0.775 V input level) 88 dB
 Phono Input (7.5 mV input level) 78 dB

PHONO:

Dynamic Range 111 dB

NOTE: Dynamic Range is the ratio in dB of the phono overload (300 mV) to equivalent input noise (0.85 μ V).

Equivalent Input Noise 0.85 μ V
 Input Overload @ 1 kHz, 0.1% THD 300 mV

Input Sensitivities (for rated output)

Mic 1.8 mV
 Phono 1.8 mV
 Tape or Aux 180 mV
 Main In 1.5 V

Input Impedances

Mic 10 k ohms
 Phono 47 k ohms
 Tape or Aux 60 k ohms
 Main In 75 k ohms

Tape Output Level

(Ref.: 7.75 mV @ phono input) 775 mV

NUMBER OF SEMI-CONDUCTORS:

Transistor's

FET's

Diode's

IC's

GENERAL:

Power Requirements 110, 120, 220, 240V AC 50 Hz
 Idling Power Consumption 30 Watts (Nominal)
 Consumption at Rated Power 300 Watts (Nominal)
 Maximum Power Consumption 450 Watts (Nominal)
 Cabinet Dimensions-Height 14.4 cm
 Width 37.6 cm
 Depth 30.1 cm
 Weight 14.8 kg

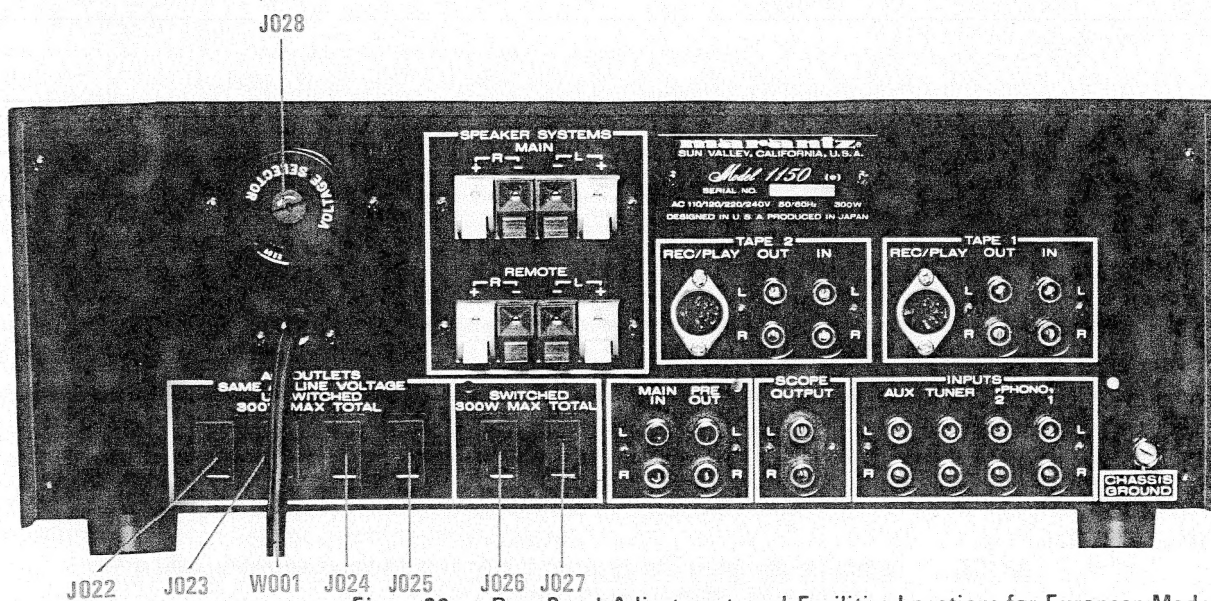


Figure 20. Rear Panel Adjustments and Facilities Locations for European Model

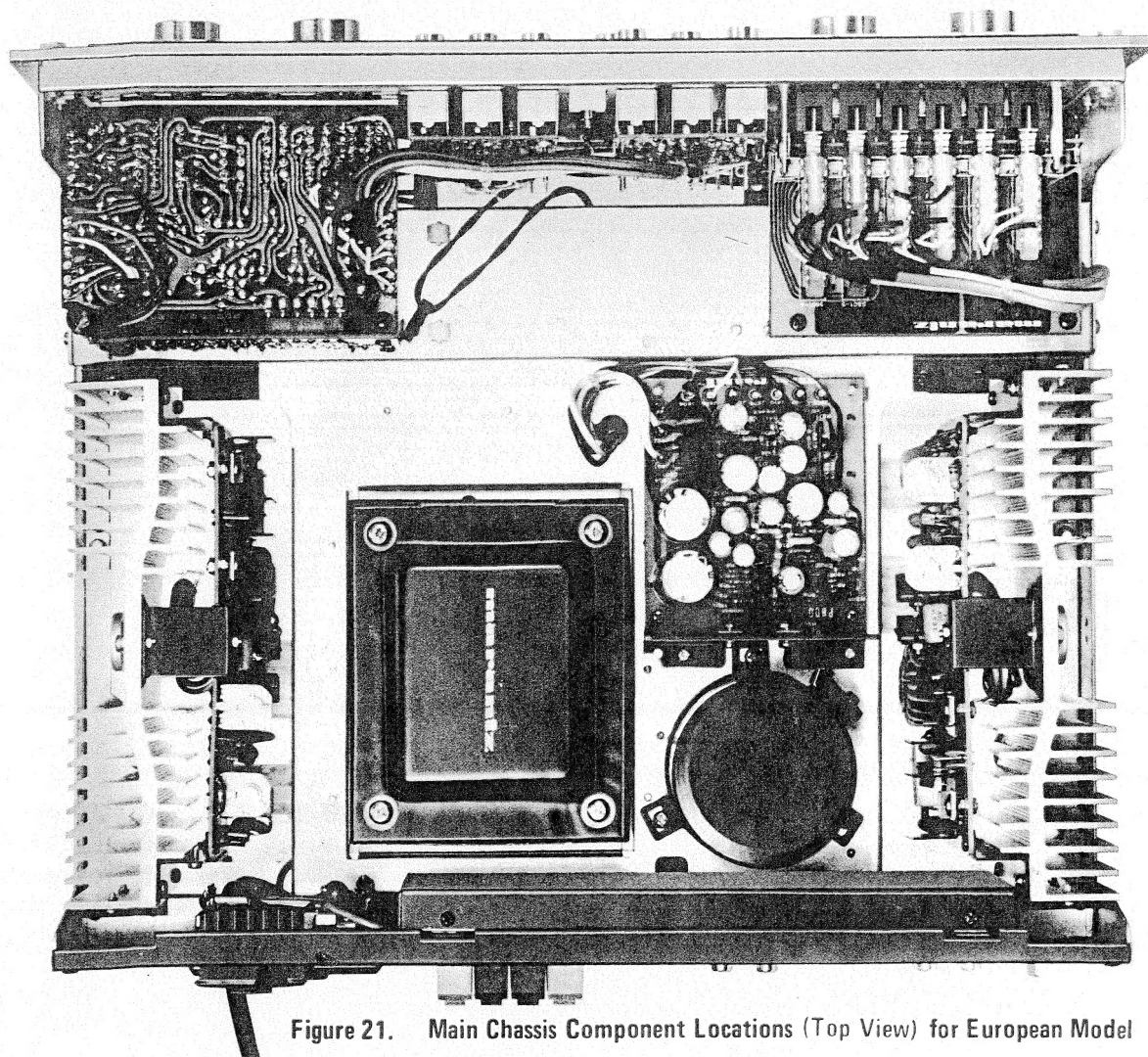


Figure 21. Main Chassis Component Locations (Top View) for European Model

VOLTAGE CONVERSION

This Model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240 V AC 50/60 Hz.

To convert the unit to the required voltage, set the plug as illustrated so that you can adjust the voltage as required.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

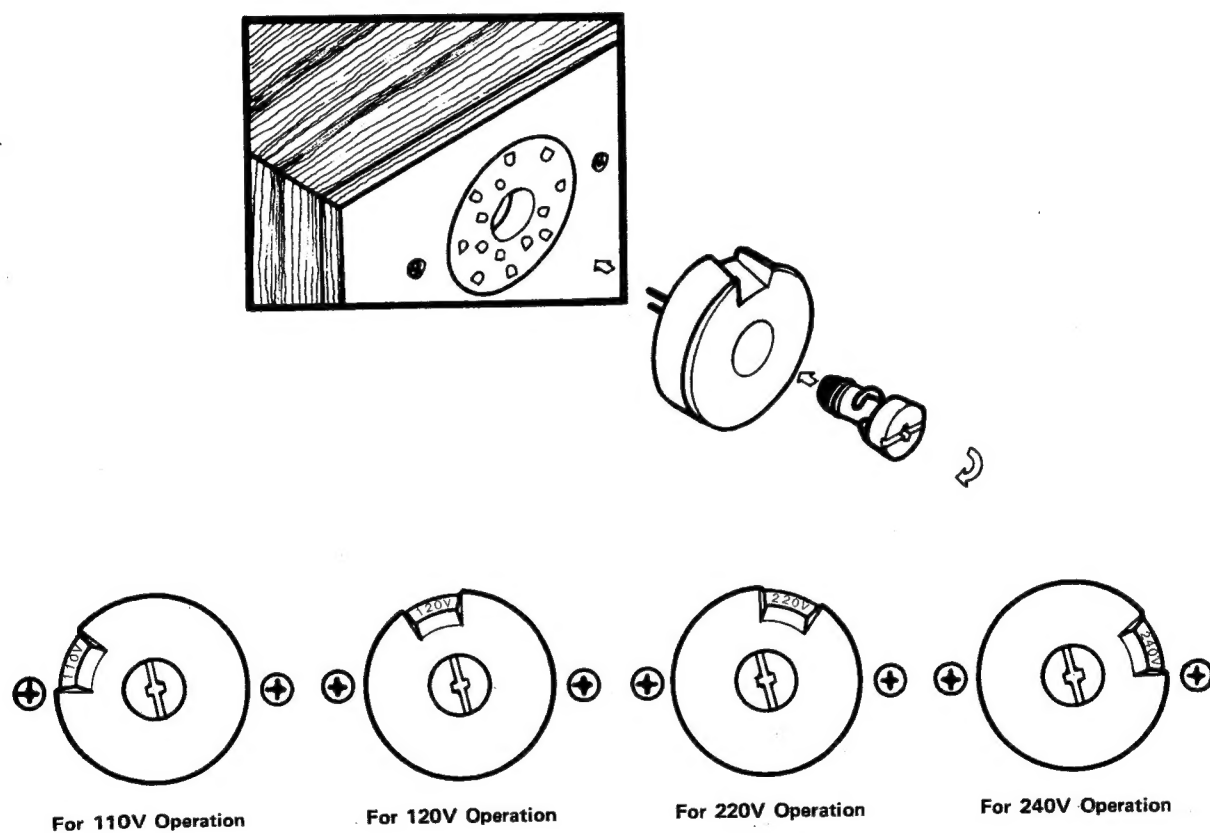


Figure 22. Voltage Conversion Chart



